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THE ORCHID REVIEW

An Illustrated Monthly Journal

DEVOTED TO ORCHIDOLOGY

VOLUME XVII.

1909.

BOT. GARDEN
1910

London:
MARSHALL BROTHERS, KESWICK HOUSE, PATERNOSTER ROW, E.C.

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"With such a liberal hand has Nature flung
Their seeds abroad, blown them about in winds,
Innumerous mix'd them with the nursing mould,
The moistening current, and prolific rain."

THOMSON.

Subscriptions for 1909 are now due.

VOL. XVII.] JANUARY, 1909. [No. 193

THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVII.] *JANUARY*, 1909. [No. 193.

THE ORCHID STUD-BOOK.

IT is with great satisfaction that we are able to announce the completion of the *Orchid Stud-Book*, whose appearance has been awaited with no little impatience by many of our readers.

Its object, as pointed out in the Preface, is "to provide an authentic list of existing Orchid hybrids of artificial origin, arranged on a uniform system, so as to show at a glance the crosses that have already been made, the adopted name of the hybrids, the works in which they have been described and figured, the original raiser or exhibitor, and the date of first flowering—in short it is intended as a guide to the already vast literature of the subject, and a standard of nomenclature."

Some of the difficulties met with during its execution are pointed out. "These have partly arisen through the same hybrid having been raised independently in different collections, but chiefly through want of a uniform system. Some raisers have considered all the seedlings from the same cross as forms of one, while others have given distinct names to different seedlings out of the same seed-pod. Some hybrids have received Latin or classical names, in accordance with the rules of binomial nomenclature, or have been distinguished by the joint names of the two parents, while others have been named in the vernacular. A few have been recorded without names. In addition to this there are many hybrids whose parentage has been lost, or whose records are incomplete, contradictory, or erroneous. Stray seedlings, loss or absence of record of parentage, change of ownership of unflowered seedlings, the contemporaneous flowering of the same hybrid in different collections, and the naming of hybrids without reference to the work of earlier operators, have all contributed their quota to the confusion arising from the multiplicity of systems of nomenclature, and the object of the work is to provide a remedy for this confusion, so far as possible."

The work is divided into two parts :—

"PART I. contains an enumeration of the species and hybrids which have been used as parents, these being arranged in alphabetical sequence, followed by the name of the resulting hybrid. The name of the first parent

(in the alphabetical series) is given in heavy type in the centre of the column, and all the species with which it has been crossed are arranged alphabetically on the left, with the resulting hybrid on the right. Each parent appears again in its own alphabetical position, and thus the hybrids of any given species appear all together. . . . Having found the name of the hybrid by means of its parents, one turns to Part II., where its history and other details are given. Part I. serves the double purpose of indicating the name of any given hybrid whose parents are known, and of shewing with what others a given species has been crossed."

PART II. contains (1) an alphabetical enumeration of existing hybrids, each under its adopted name, followed by (2) the names of its parents, (3) references to descriptions and figures, (4) the name of the raiser or exhibitor, (5) date of first flowering, and (6) synonymy, these being followed in a few cases by (7) a short additional note. A few explanatory details are given under these several headings.

"1. NAMES.—In all cases we have aimed at adopting the earliest correct name, but this is not invariably the name first published. Part II. commences with a few suggestions for securing greater uniformity of practice than at present exists, and the following paragraph may be repeated, as it has been our guide throughout:—

'Hybrids raised between species should receive specific names, Latin or classical, consisting of a single word—the use, however, of two short words being permissible where they can be connected with a hyphen. Short names should be used for preference, those exceeding six syllables being considered inadmissible.'"

Some examples of the names adopted are then given.

"2. PARENTS.—The names of the parents are given in their alphabetical sequence, and in most cases where the seed parent is definitely recorded the sign ♀ follows the name. But in many cases the record is not clear, and where doubt exists the sign has been omitted. Raisers might help to fill up some of these blanks, and to correct any that are known to be erroneous."

References and figures may be left to explain themselves, but of the latter it is remarked: "Except in cases where they are unduly numerous, an attempt has been made to give a complete list of published figures, (avoiding, however, mere repetitions in the same work)."

The next point that we note is that of Synonymy, under which we find: "This has proved an unusually difficult subject. A glance at page 97 will show that the well-known hybrid between Cattleya Mossiæ and Lælia purpurata (Læliocattleya × Canhamiana) has been recorded under nineteen distinct names, while Paphiopedilum × aureum has nearly forty synonyms. The latter may be an exceptional case, and a good

example of the wide diversity of character often shown by secondary hybrids (even out of the same capsule), which seem to defy all attempts to name them satisfactorily, but generally speaking there has been a careless and even reckless multiplication of synonymy. But hybrids with imperfect or contradictory records have proved still more difficult. It was impossible to ascertain whether they should be regarded as distinct or as forms of something else, and many such have had to be omitted because of the sheer impossibility of knowing where to put them. The records or the plants may exist somewhere, and if so we hope that the absence of the names will be detected, and that such information will be forthcoming as will serve to clear up their history. A similar difficulty may have led to some of them being inserted in the wrong place, and if so we hope the errors will be pointed out. The synonyms are arranged as far as possible chronologically, which shows the history of any given hybrid better than an alphabetical arrangement."

There are 120 figures in half-tone, a long addenda down to the end of 1907, and a complete Index of Synonyms. A paragraph relating to omissions may be summarised by saying that a certain number of hybrids whose parentage could not be ascertained have been omitted until the necessary information is forthcoming, and this should afford an opportunity for the ingenuity of our readers, which we hope they will not lose sight of. The next paragraph is of general interest.

"SECONDARY AND MORE COMPLEX HYBRIDS.—A great deal of difficulty has been experienced in dealing with secondary hybrids and those of more complex parentage. Although we have treated them the same as primary hybrids it is felt that the plan is not satisfactory. Primary hybrids usually combine the characters of their parents in such a way that they can easily be recognised, and the variations assumed by different individuals from the same seed pod or the same cross are seldom great enough to prevent them from being recognised, and had the matter gone no further most of the difficulties could have been got over with very little trouble. But we now have hybrids of almost every degree of complexity—primary hybrids recrossed with their own parents, or crossed with other species or hybrids; hybrids derived from two species in which the parents are combined in equal and in unequal proportions; hybrids derived from three species, from four, and one even from five species; and while some of these complex hybrids vary enormously between themselves they also in some cases resemble others that are known to have been derived from different crosses. In short there are hybrids whose parentage cannot be fixed with any degree of certainty by an analysis of their characters, because of the amount of reversion that has taken place. Then there is that curious complication that certain crosses which from their parentage appear to be

distinct, yet on analysis prove identical. To put the case differently, the same hybrid may be obtained in two different ways. For example, Odontoglossum nobile crossed with O. × spectabile would appear to be a distinct hybrid from O. × Rolfeæ crossed with O. × armainvillierense, but an analysis of parentage shows that both are composed of half O. nobile, a quarter O. crispum, and a quarter O. Harryanum. The two have been left under their respective names of O. × percultum and O. × Ossultoni, but it is at least a question whether they ought not to have been regarded as forms of one. And this is only a type of a series. Owing to these perplexing facts it becomes a question whether secondary and more complex hybrids may not in the future have to be treated in a different way from primary ones, or at all events have to be classified separately. The species in certain genera are now becoming so completely linked up by chains of hybrids that we may have to treat these complex forms purely as florists' flowers, selecting and naming only such as show distinct improvements on their predecessors and ignoring the remainder. Some such selective method seems almost inevitable in the near future."

Following the Preface is the "History of Orchid Hybridisation," in which the more important events are discussed in chronological sequence, and then come articles on "Generic Hybrids," the "Specific Composition of Hybrids," in which the various grades of complexity are discussed, and the "Variability of Hybrids." Six pages are next devoted to the "Literature of Orchid Hybrids," a chronological arrangement being followed, and fourteen others to a chapter on "Hybridising and Raising Orchids from Seed."

The bulk of the work is naturally devoted to the enumeration of species and hybrids used as parents, and to that of their hybrid offspring, which fills 312 pages, both being alphabetical—the arrangement and details, however, have already been mentioned. The "Index of Synonyms" fills eleven closely printed pages, and is followed by the "List of Illustrations," 120 in number. The Frontispiece, appropriately enough, shows a fine specimen of Calanthe × Dominyi, the first hybrid Orchid raised by hand.

Finally, comes an arrangement for "Future Supplements," as follows :—

"It is inevitable that a work of this kind, dealing with a subject which is progressing with such rapid strides, should very quickly become out of date. The preceding pages contain the hybrids recorded up to the end of 1907, so far as their history could be ascertained, but a large number have been recorded since, and almost every meeting of importance brings additions to the list. It is intended to publish future additions in the ORCHID REVIEW, so as to prevent the work from falling out of date. Those for 1908 have already been collected, and a first instalment will appear in

an early number of that work, after which the records will be continued from time to time as the materials accumulate. This will also afford an opportunity of correcting any errors that may be pointed out, and of including any hybrids that have been omitted for want of information. It is quite probable that materials exist which will enable the origin of some of these doubtful hybrids to be cleared up, and it is hoped that any such information will be forthcoming.

"In order that future records may be as complete as possible, it is hoped that raisers will forward the necessary information respecting their productions, as they reach the flowering stage, accompanied by a flower as a voucher of authenticity, and this remark applies equally to any old hybrid which has been overlooked or omitted, or whose origin has been incorrectly given. If raisers will compare the work with their own private records, and let us know the result, some important information may be elicited, for we have reason to believe that there are hybrids in existence whose origin has never been properly recorded. Hybrids that have not yet reached the flowering stage are outside the scope of the work.

SCHEDULE FOR INFORMATION RESPECTING ADDITIONAL ORCHID HYBRIDS.

1. Seedparent.
2. Pollen parent.
3. Name (if any).
4. Raiser.
5. Exhibitor.
6. Date of first flowering.
7. Record of publication or exhibition (if any).
8. Any additional information.

EXAMPLE:—

1. Calanthe Masuca.
2. Calanthe furcata.
3. Calanthe × Dominyi.
4. Veitch.
5. ———
6. October, 1856.
7. *Gard. Chron.* 1858, p. 4.
8. The first hybrid Orchid raised by hand.

"The above is only intended as a rough guide as to the kind of information desired, and its arrangement. Some of the points may not be known, and others will necessarily in some cases have to be left blank. If, however, there are doubts about the actual parentage, it is hoped that in the interests of accuracy this will be pointed out. The exhibitor is not always the actual raiser, and sometimes the latter is not certainly known, but the complete record is desired as often as possible.

"The above form is obviously not suitable for corrections and criticisms of existing records, which when necessary we hope to receive.

"All communications should be addressed to the Editor."

EVENTS OF 1908.

IN summarising the horticultural events of the past year we may first mention the great Quinquennial Exhibition at Ghent, which also celebrated the Society's Centenary. As usual, it brought together the leading horticulturalists of Europe, while the display of Orchids was certainly very fine, and what it might have been is difficult to imagine, for prizes were offered in eighty-one classes, though only twenty-seven were filled, and in several of these there was only a single exhibit. The group staged by M. Firmin Lambeau, of Brussels, which gained the Gold Medal offered by His Majesty the King of the Belgians, was excellent, and that staged, not for competition, by Major G. L. Holford, of Westonbirt, was remarkable in every respect, occupying an area of over 300 square feet, and containing many very fine specimens and some brilliant novelties The group of hybrid Odontoglossums exhibited in a long glass case by M. Ch. Vuylsteke, of Loochristi, was equally remarkable, nothing like it having been staged before.

OTHER EXHIBITIONS.

The great shows held by the Royal Horticultural Society at the Inner Temple Gardens and at Holland House have never been surpassed, perhaps not equalled, in the brilliant display of Orchids brought together, while the usual fortnightly meetings have rarely failed to produce a fine show of Orchids, or some brilliant novelty. The Manchester and North of England Orchid Society have also had a very successful year, and the various Cup Competitions have led to a keen but friendly rivalry, all of which testifies to the growing popularity of these beautiful plants.

NOVELTIES.

The striking novelties of the year have been almost exclusively of hybrid origin, and the progress which has been made in this department is remarkable, and seems likely to increase year by year. A number of new species have been described, several interesting in themselves, but nothing of striking horticultural merit. Several fine varieties of existing species, however, have appeared, and among them the beautiful albinos, Vanda cœrulea Charlesworthii, Cypripedium Charlesworthii Bromilowianum, and C. macranthum album.

HYBRIDS.

Hybrid novelties have been so numerous that one hardly knows where to begin. One of the most brilliant, however, is Odontioda Charlesworthii, whose uniform crimson colour came as a surprise, considering that one parent was the strongly marked Odontoglossum Harryanum. O. St.-Fuscien, O. keighlyensis and O. Thwaitesii are also very promising acquisitions. Diacattleya Colmaniæ and Chondropetalum Fletcheri are also interesting generic crosses, though in the latter the Zygopetalum

parent exerts a greatly preponderating influence. Additions were made to most of the large showy genera, but as we shall have to summarise them elsewhere they may be passed over. Suffice it to say that among the complex hybrids of Cypripediums some striking novelties appeared, several of them being certificated by the R.H.S.

ODONTOGLOSSUMS.

This genus has rapidly come to the front, for over a dozen interesting novelties were recorded, without reckoning varieties of hybrids previously recorded. Probably the most striking addition was O. × maculatissimum, exhibited by M. Ch. Vuylsteke at Ghent, while O. × Groganiæ, raised by J. H. Grogan, Esq., from O. × Uroskinneri and O. Edwardii, was one o the most interesting. O. × hibernicum, O. × Clytie, and O. × Eleanor, raised by Messrs. Charlesworth & Co., and O. × Zenobia, O. × Nerissa, and O. × Nemea, raised by De Barri Crawshay, Esq., were also attractive additions to the list. Several others also flowered with Mr. Crawshay.

CERTIFICATED ORCHIDS.

The certificated Orchids of the year contain a large proportion of novelties. Fifty-one First-class Certificates were awarded by the Royal Horticultural Society, and of these thirty-eight were given to hybrids, either new or of very recent origin. Odontoglossum heads the list, with ten hybrids and three varieties of O. crispum. Then comes Cypripedium with nine, six of them hybrids, the others being C. Charlesworthii Bromilowianum, C. bellatulum, Exhim's var., and the old Siberian C. macranthum (the latter certificated under the name of C. ventricosum). Of the eight Cattleyas four were hybrids, two of them being forms of the beautiful albino C. × Suzanne Hye de Crom. There were four Brassocattleyas, three Læliocattleyas, and three Vandas, including the beautiful albino V. cœrulea Charlesworthii and a coloured form of the species, two Odontiodas, both of them forms of the brilliant O. Charlesworthii, two Sophrocattleyas, and two Cymbidiums, both forms of C. insigne, Genera claiming but a single representative were Dendrobium, Calanthe, Phaius, Miltonia and Stanhopea, all hybrids but the last, which was a form of the fine old S. tigrina. The Awards of Merit we have not attempted to analyse, nor yet the numerous awards of the Manchester Orchid Society.

INHERITANCE OF ALBINISM.

Some remarkable facts respecting the inheritance of Albinism have come to light during the year, which have been very fully discussed in our pages. With the object of obtaining albino hybrids, albino varieties of different species have been intercrossed, and now that the seedlings are beginning to flower an unexpected condition of things has revealed itself, the hybrids having in many cases reverted to ordinary coloured forms. Hybrids between Cypripedium insigne Sanderæ and C. × Maudiæ, C.

callosum Sanderæ, and C. i. Dorothy have in every case reverted to coloured forms, while hybrids with C. bellatulum album have also partially reverted, as shown by the figures at pp. 104, 105 of our last volume. Seedlings obtained by crossing together albino varieties of Cattleya labiata have also yielded ordinary coloured forms, and thus were equally disappointing. But a batch of hybrids raised from Cypripedium × Maudiæ and C. insigne Sanderianum retained the albino character, as may be seen by the figures of C. × Rossetti with its two parents given at pp. 265-267 of the same volume. This seems to show that the two varieties of C. insigne mentioned, Sanderæ and Sanderianum, are constitutionally much more distinct than would appear from their characters. Further observations on the subject will be awaited with interest, for differences of opinion exist as to the cause.

OUR ILLUSTRATIONS.

Several novelties of the year have been illustrated in our pages, namely :—

Chrondropetalum Fletcheri, p. 56.
Cypripedium × Rossetti, p. 265.
Diacattleya Colmaniæ, p. 80.
Odontoglossum × Crawshayanum, Thompson's var., p. 177.
Odontoglossum × egregium, Madame Jules Hye de Crom, p. 209.
Odontoglossum × maculatissimum, p. 169.
Vanda cœrulea Charlesworthii, p. 361.

The female flowers of Cycnoches Egertonianum and the handsome Cœlogyne Mooreana have not previously been figured.

LOSSES DURING THE YEAR.

Three well-known Orchidists have passed away during the year. The death of the Marquis de Wavrin, of Ghent, in February last, left a blank in the ranks of Belgian Orchidists, and his fine collection was sold during the Ghent week. Later in the year another enthusiastic Orchidist passed away in the person of Frau Ida Brandt, of Zurich, from whose collection we have received many interesting Orchids, and who had been a subscriber to this work almost from the commencement. The name of John Carder has been familiar to Orchidists for many years as an importer of Odontoglossums, but his death took place early in December. An Obituary notice appears on another page.

So much for the events of the past year, those of the coming one cannot be foreseen, but we may at least anticipate that it will contribute its quota to the general progress of Orchidology. The preparations of the hybridist are now on a vast scale. May the harvest be equal to his most sanguine anticipations.

PAPHIOPEDILUM NIVEUM VAR GLORIA MUNDI.

THE annexed figure represents a remarkably fine form of Paphiopedilum niveum from the collection of E. D. Bostock, Esq., Holly House, Stone, Staff., and is reproduced from a photograph kindly sent by him. Some time previously a living flower was received, one of the finest we have yet seen of this beautiful species. The colour is pure white, with a few very minute purple dots on the petals. The species varies very much in size, but large-flowered forms are rare, and prized accordingly. The species is a

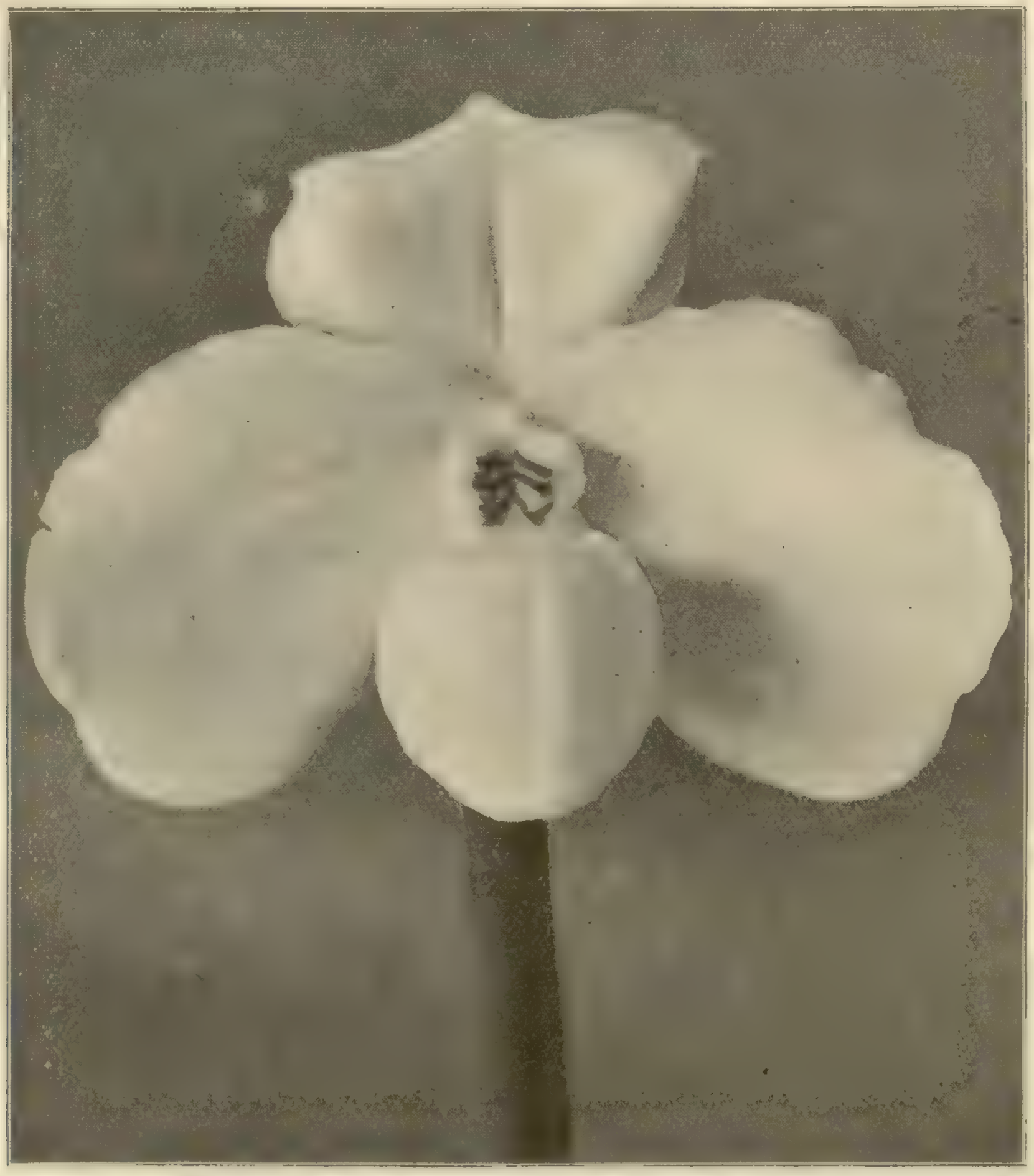

Fig. 1. PAPHIOPEDILUM NIVEUM VAR. GLORIA MUNDI.

native of the Langkawi Islands, north of Penang, where it is said to grow on limestone mountains, generally on the western sides, where it is not much exposed to the sun; often in the crevices of the sloping rocks, but seldom on the perpendicular escarpments like many other Cypripedes. It also grows on the Tembilan Islands, another small group within the equatorial zone, about midway between Singapore and Sarawak. Growing in such a situation it naturally requires a light position in a warm house, with very careful watering.

CALENDAR OF OPERATIONS FOR JANUARY.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

DENDROBIUM WARDIANUM.—Plants that have been properly rested will be pushing their buds, and in many cases flowering during this month. They should be staged in a light position, and given a little extra water till the flowers are properly developed, and then kept a little drier till they pass out of flower, when they can be removed to their growing quarters. Where a house cannot be set aside for them they will grow well in a plant stove or vinery. D. aureum, × Curtisii, × Doris, and a host of other hybrids will also be pushing their flower buds, and should be given similar treatment. Where several potting mixtures have been tried notes should be taken whilst the plants are in flower as to which gives the best harvest of flowers, as some mixtures give fine bulbs but few flowers, whereas, in most cases, quantity of flower is the chief aim, so that if notes are taken whilst the plants are in flower a satisfactory result can be obtained again next season. Here we are always trying fresh mixtures and treatments during growing seasons, and I have found in many cases that flowers are better guides than growths, but generally speaking with Dendrobes I find the best thing is to get them growing as soon as possible after flowering, and let them ripen as they grow, that is give them a long growing season, and not rush them or give very high temperatures at any time. Where the Dendrobes are housed at present we give a temperature of 55° to 60°, plenty of moisture in the atmosphere, and ventilate on every fine or mild day. So long as it is done carefully, a good syringing is better than too much water with the watering can, and also keeps the plants clean and provides a good growing atmosphere, but afterwards a little ventilation must be given some time during the day, if only for half an hour, or spot will soon show on the bulbs and young growths.

AERIDES, ANGRÆCUMS AND VANDAS are a beautiful class of Orchids, which have been rather neglected of late years, probably because the showy hybrid Cattleyas and Lælias have replaced them, and are more useful as decorative plants. In any case we do not see such fine specimens shown as was the case a few years ago. Many of the varieties are only of botanical interest, though some of the larger flowering species are very handsome when in flower. Practically the whole of them like a stove temperature, with perhaps the exception of Vanda cœrulea, which generally does better in a temperature of about 60° to 65°. Until we get brighter weather they should all be kept on the dry side. Do not dry them so as to shrivel the leaves; just enough water should be given to keep the leaves plump, until they commence to root again, when an ample supply can be given. They also then enjoy a good syringing overhead on fine days. During the winter

months they will get infested with a small scale, which if not carefully sponged off soon disfigures the leaves, causing them to turn yellow. If neglected this soon spreads, and ants will distribute it over the whole of a plant or a batch of plants if not checked. Spraying occasionally with a good insecticide will keep them in check and save a lot of sponging, otherwise they are not troubled with insect pests. They are not difficult plants to grow, and their beautiful and curious flowers are always admired, and for the most part remain long in perfection.

CŒLOGYNE CRISTATA, and its varieties alba, Lemoniana, Trentham var., &c., will soon be flowering, in a temperature of 65°, and will last a considerable time in perfection. Give enough water to keep the bulbs plump, or the flowers will be small, and the plants will suffer if flowers are left on long. Where the flowers are wanted for decorative purposes the plants must be kept in a plump condition, or it will take a long time to pull them round again after they have flowered. These are generally termed old-fashioned Orchids, still where white flowers are wanted in quantity, they are very hard to beat. As a winter-flowering Orchid I do not see much chance of their being replaced by any hybrids, especially at the price Cœlogynes can be bought at, and they will grow in a cold frame during summer, only requiring heat during winter and at their flowering season. Scale seems to be the only thing that bothers them, and this can easily be kept down by spraying.

MILTONIAS.—Miltonia vexillaria, Roezlii, and × Bleuana will be growing freely now the days are getting lighter, and will make stronger growths. Leaves which have been made during dull weather, and are weak, will soon strengthen with sunlight to help them, and a little ventilation will give them that bronzy colour so much admired by growers of these beautiful flowers. Those plants that were potted in the autumn will be well-established by now, and will require an abundance of water at the roots, as the sun will soon help to dry them, and fire heat has to be used pretty strong yet. Although the sun gives a little help in the middle of the day it soon loses its power, and it is not advisable to drop the fires much until next month. Thrip must be carefully watched for, and the plants sprayed or fumigated as soon as any are seen. The best plan is to spray occasionally and prevent them from making any appearance at all, for it saves a lot of trouble and at the same time prevents the plants from being disfigured. Frequently in dull weather the young leaves will be seen to be stuck together, and if not released will be crippled. The handle of a budding knife or thumb nail run gently along the leaves will release them. A temperature of 60° to 65° will suit them, but M. Roezlii will grow best in stove temperature. Keep a moist growing atmosphere, and ventilate whenever possible. A light spraying overhead on fine days will keep the leaves fresh, and also

keep thrip down. Do not drown the plants; just a light spraying will make them look happy.

CYPRIPEDIUMS of the insigne class will mostly be past their flowering stage. These should be examined and those that require potting done at once. Good turfy loam, crushed crocks, and one-third leaves suits this class first-rate. Some growers object to using loam, but, in my opinion, there is no comparison between flowers grown in loam and those grown in peat. We have tried divisions of the same plant, grown side by side in the same house, under the same treatment, and in comparing flowers the loam-grown plants always come much finer and make much finer plants. If locality has anything to do with growing Cypripediums, there ought to be some magnificent results shown where pure air can be counted as an advantage. Here we lay in a very bleak position, and the only time that we get fresh air free from sulphur fumes is when the wind is west. We do not get bothered with thrip, so perhaps we have something to thank the smoky fogs for after all. Plants that need re-potting should be given a liberal shift, so as not to disturb them again for at least two years. Large specimens must be carefully handled, and if not broken up they can be dropped into a larger pot, and lumps of compost worked in between the roots, not just pushed down to the bottom of the pot. When a plant is not to be potted for two or three years, it is worth doing well. Orchids are not much trouble to pot when compared with Chrysanthemums, yet how seldom one sees Orchids, which will have to stand two or three years, well potted. and how carefully the Chrysanthemums have been potted, which have only to stand in the same pot for two months, and yet the Orchid flowers will last longer than a whole batch of Chrysanthemums and will not want half as much attention. If only a fraction of the attention given in potting other things was extended to the Orchids what a different result we should see. In potting we crock our pots as for ordinary plants, not half fill them with crocks, then gradually work lumps of material between the roots, filling up with finer mixture as we go on, so that the plant has the same rooting medium at the bottom of the pot as at the top. We do not top up with moss, but just finish off neatly about an inch or so from the rim, according to the size of the pot. If the material has been damped before using it will settle firmly, and not require watering for a few days after potting. I am not much in favour of top-dressing. I would rather pot a Cypripedium than top-dress it, as Cypripediums are so different in rooting and growing from the majority of Orchids. It does not much matter when they are potted, as they are always growing and rooting. Of course if fine flowers are wanted they must be potted a reasonable time before their flowering season. Newly potted plants should be staged by themselves, then no mistakes will be made in watering. Syringe between the pots each

day, and overhead as well, and the plants will soon get established again, especially if the temperature can be raised 5° to 10° to help them to start again.

TEMPERATURES should be kept as even as possible during this month. If the blinds are run down at night it will be found a great help, especially where a boiler is not over large.

The temperatures should run about as follows:—

Cool house, night 50°, day 55°.
Intermediate house, night 55°, day 60°.
Cattleya house, night 60°, day 65°.
Stove or East Indian house, night 65°, day 70°.

Houses should be damped so as to prevent a fiery smell being noticed when entering them, always remembering one is growing Orchids, not Cacti. Orchids will not thrive in a dry atmosphere.

EPIDENDRUM × KEWENSE: A MENDELIAN EXPERIMENT.

WHEN the interesting Epidendrum × kewense was described six years ago (*O.R.* xi. p. 6) it was remarked: "A few flowers have been self-fertilised, and if the hybrid proves fertile the results should be specially interesting, for Mendel's theory assumes that the gemmules of hybrids remain pure, and therefore self-fertilised seedlings ought to revert in certain characters." The fertilised flowers came to nothing, and I therefore fertilised the hybrid with both its parents (all being in flower together), and also reversed the crosses, with results that have already been described (*O.R.* xv. p. 58). Over a year later, when the plants were stronger, another attempt was made to self-fertilise the flowers, and this time a good capsule and abundance of seeds were obtained (*O.R.* xiv. p. 272; xv. p. 58). And now one of the seedlings, raised at Burford, has expanded its first flowers, and with others, some of which are showing spikes, has been sent to Kew. The first result is that E. × kewense has reproduced itself true from seed, for parent and offspring resemble each other almost as closely as in the case of seedlings of a pure species. Whether the other seedlings will behave in the same way remains to be proved, so that further discussion of the subject may be postponed. It may, however, be added that about six other spikes are showing, also spikes on the secondary hybrids between E. × kewense and both its original parents, while E. × kewense is already in flower, so that there should be some interesting material for comparison very shortly. Both these secondary hybrids produced weak spikes last year, but the results were held over in the hope that this year a more definite opinion of the whole problem could be formed. It would be interesting to self-fertilise E. × O'Brienianum, for the parents show well-marked differences, both in floral and vegetative characters.

R. A. ROLFE.

THE TWENTY BEST HYBRID CYPRIPEDES.

THE task of selecting the twenty best hybrid Cypripedes is not an easy one, and is likely to show much diversity of opinion. Mr. Samuel Gratrix, West Point, Whalley Range, Manchester, sends the following as his selection :—

C. × Actæus, West Point var.
C. × A. J. Balfour.
C. × alportense.
C. × Archimedes.
C. × Beryl.
C. × eboriacum.
C. × Euryades magnificum.
C × Eve.
C. × fulshawense.
C. × Gaston Bultel.
C. × Golden Glow.
C. × Leeanum Gratrixiæ.
C. × Leoneæ, Gratrix's var.
C. × Minos Youngii.
C. × Priam.
C. × Queen Alexandra.
C. × Samuel Gratrix.
C. × Sir W. Houldsworth.
C. × Thalia, Gratrix's var.
C. × The Baron.

It is remarkable how few of the names agree with those of Mr. Wellesley's list. The only name common to both is C. × The Baron, though the number could be extended to five if varieties were excluded. In this case, however, Mr. Wellesley's list would have to be reduced to eighteen, if not less. Mr. Gratrix has not analysed the percentage of the species represented, as in the former list, but he shows that most of the hybrids have received the award of a First-class Certificate. The question of money value is not discussed, and may very well be left out of consideration, being something quite distinct from the decorative value of a plant, and an altogether variable factor.

One correspondent asks for a more representative list, in which the claims of the summer-flowering hybrids are better recognised. It is also pointed out that some of the hybrids are of such recent origin that a good many people have not seen them. Perhaps the selection might be made on a somewhat different principle, for one wonders how it is that such highly decorative plants as the best forms of C. × nitens and C. × Lathamianum fail to find a place. We hope that other readers will favour us with their views.

CYPRIPEDIUM RECORD "UNDER THE HAMMER."

REFERRING to Mr. F. A. Wellesley's note (*O.R.*, December, 1908, p. 354) he is in error as to £300 being the record for *any* Cypripedium. It is ancient history, and long before *his* time as an Orchidist, but well within *mine* (I am perforce bound to admit it), that Cypripedium Stonei platytænium realised, on May 4th, 1887, £325 10s., at the Lee, of Downside, Sale. Mr. Wellesley holds the £300 hybrid Cypripedium record under the hammer,

and possibly this actual record of species over hybrid may help fanciers eager to wipe out the past to break it in the coming season.

DE B. CRAWSHAY.

CHONDROPETALUM FLETCHERI.

Two interesting inflorescences are sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, who remarks: "The plants have always been supposed to be from a cross between *Zygopetalum* Mackayi and Chondrorhyncha Chestertoni. We have flowered it for three or four years, but never took any notice of it, being so like the *Zygopetalum*, but the present ones have more variation than any I have flowered previously." If the record is correct, the seedlings should belong to Chondropetalum Fletcheri, figured at page 56 of our last volume, though both are considerably different. One has light green sepals and petals, strongly striped with brown, and slightly blotched, and the lip white lined throughout with clear purple in slightly interrupted lines; the other has the sepals and petals blotched with brown, and the lip much more white, owing to the markings being not half as numerous, and not extending to the apex. In neither case can we trace a distinct character of the Chondrorhyncha. In the one figured the markings on the lip are limited to the crest. We do not know if all are from the same cross. The cross should now be attempted with the Chondrorhyncha as the seed parent. These "false" hybrids are a profound mystery, and we wish someone would make some experiments analagous with those made by Messrs. Veitch with Cattleya Mossiæ.

CYPRIPEDES FROM BRIDGE HALL, BURY.

EARLY in December last we received a beautiful series of Cypripedes from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers). Mr. Wrigley then wrote:—

"These blooms have been cut in a hurry, in order that they might not be damaged by the fearful smoky fogs from which we have been suffering during the past week, as these fogs have begun again to-day. It is now five years since we had a similar experience of five consecutive days of similar dense fogs, and on that occasion our Cypripedes were ruined, and I regret to say that a similar fate has befallen these long-suffering flowers again. We have close on one thousand blooms open, and most of them are beginning to show the effects of the fog, as they are losing their beautiful colouring, if the blooms are not destroyed altogether."

The list is too long to enumerate, suffice it to say that it includes fine examples of all the best yellow and spotted forms of C. insigne, a fine C. tonsum, and a very beautiful example of C. Fairrieanum, together with several of the best forms of C. × Leeanum, C. × nitens, the beautiful C. ×

Minos Youngii, C. × Lathamianum, and several other good things, among which C. × Euryades incomparible stands out as one of the most striking, on account of the amount of rich purple on the dorsal sepal and the clear white margin and apex. C. × Actæus, C. × aureum Rogersii, and C. × Kitty are also very fine. Mr. Rogers, in a note, calls attention to C. insigne Gladys, as being the nearest approach to an albino that he knows, the flower being clear yellow, without either spots or brown hairs—the latter remark applying to some brown hairs at the base of the petals of C. i. Sanderianum, which it otherwise most resembles. He also mentions one called C. × Constance Wrigley, a cross between C. × Minos Youngii and C. insigne, Harefield Hall var., which in its broad segments and bold spotting most resembles the latter. All the flowers are large and very finely developed, and have evidently been cut from strong well-grown plants. They enable one to realise what a fine display they must have made when on the plants. The ravages of the fog fiend seem to be periodic, and we may hope that the present visitation may again prove exceptional.

VANDA CŒRULEA.

WITH this note I send you two photographs of some plants of Vanda cœrulea which have bloomed very well with me this season, and I really hope that we have found out the right place in which this lovely Orchid will flourish, make roots, and produce bloom spikes. Ever since I began to grow Orchids seriously I have made many attempts to grow this Orchid, but without success, for the plants gradually died out, although they were placed in various temperatures and varied situations. One of my purchases was made about eight or nine years ago, and this plant has existed up to the present year, making several attempts to bloom, but the bloom spike always damping off, and the plant gradually losing ground each year. Last autumn, however, this plant was placed along with a dozen others in a certain position in a house in which I grow my Cypripedium insigne and its hybrids. This house has a southern aspect, and its temperature, by fire heat, ranges from 55 degrees at night to 60 degrees by day, and this temperature we endeavour to keep up the year through. As you can see by the photographs, the plants are making roots freely and have bloomed splendidly, and even the nine-year old plant has turned over a new leaf and produced a nice spike with perfect flowers, and has made roots freely, which it never did before. The photographs show one plant with four spikes of bloom, and a selection of plants which were equally well flowered. We now hope we have found out the situation which this lovely Orchid likes, and expect to have a good show of bloom on our thirty-one plants when the time for flowering comes round again.

Bridge Hall, Bury. O. O. WRIGLEY.

The photographs sent represent sturdy well-flowered examples of this beautiful Orchid, the plant with four spikes being a fine specimen, while the group carries a mass of flowers, both being very effective. We should have selected one for reproduction, but for the fact that we have already figured the species (*O.R.* iii. p. 337), from a large-flowered example in the collection of E. H. Woodall, Esq., of Scarborough, and to which a First-class

Fig. 2. VANDA CŒRULEA.

Certificate was given by the R.H.S. This figure is here repeated. Mr. Woodall was remarkably successful in its culture, and described his treatment as warm-Vinery treatment from mid-March to October, a winter near the glass in the Cattleya house, and finally a cool dry rest from about the

end of January in a house where Primulas are happy. A clump exhibited by him, in 1894, bore seven long spikes of flowers, from thirteen to fourteen each, of the deepest blue, and in some cases touching five inches across—a very picture of loveliness. The secret—if secret there be—he considered was "*air*; abundance of it whenever possible, with sufficient moisture in the atmosphere to counteract the excessive drying caused by ventilation."

What we believe this plant particularly resents is close warm treatment, particularly when it should be at rest, this being totally at variance with its native climate. In the Khasia Hills it grows at a slightly lower elevation than Cypripedium insigne, and Sir Joseph Hooker remarks: "The dry grassy hills which it inhabits are elevated 3,000 feet to 4,000 feet; the trees are small, gnarled, and very sparingly leafy, so that the Vanda which grows on their limbs is fully exposed to sun, rain, and wind. There is no moss or lichen on the branches with the Vanda, whose roots sprawl over the rough bark. The atmosphere is, on the whole, humid, and extremely so during the rains; but there is no damp heat or stagnation of the air, and at the flowering season the temperature ranges between 60° and 80°, there is much sunshine, and both air and bark are dry during the day. In July and August, during the rains, the temperature is a little higher than above, but in winter it falls much lower, and hoar frost forms on the ground."

"In the Shan States it also grows at about 5,000 feet elevation, in what is described as a temperate climate, averaging about 80° in summer to a few degrees below freezing point in the winter."

These facts should afford a very useful guide to the culture of this beautiful autumn-flowering Orchid.

OBITUARY.

JOHN CARDER.—It is with great regret that we have to announce the death, on December 7th last, of Mr. John Carder, the well-known Orchid collector. The deceased gentleman was for some years collector for the late Mr. William Bull, of Chelsea, and through his agency many Masdevallias and other interesting Orchids were introduced to cultivation. After that he was for some time in partnership with Mr. Shuttleworth, the former continuing to collect Orchids, and particularly Odontoglossums, his name becoming famous for a fine type of the popular O. crispum. This business being abandoned, Mr. Carder continued to import O. crispum on his own account, and was engaged in the work right up to the last. He was in the City on Friday, December 4th, apparently in his usual health, but on the following Monday morning passed away rather suddenly at his residence at Wood Green. He was highly esteemed by a wide circle of Orchidists. His name is commemorated in Masdevallia Carderi, one of his earlier introductions.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on December 8th last, when there was a very fine display of Orchids, and the awards consisted of eight medals, one First-class Certificate, three Awards of Merit, and two Cultural Commendations.

H. J. Bromilow, Esq., Rainhill, Lancs. (gr. Mr. Morgan), staged a select group of well-grown Cypripediums, which received a Silver Flora Medal. It included the handsome C. × Germaine Opoix, var. Queen Alexandra, C. × Actæus var. Marjorie, C. × Lord Ossulston, the fine C. × Thalia Mrs. Francis Wellesley, C. × Minos Youngii, C. × fulshawense, C. × Priam, C. × Leeanum Corona, and others.

His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), received a Cultural Commendation for a fine plant of Vanda cœrulea, bearing four fine inflorescences. He also sent Cattleya Trianæ and a good light form of C. × Fabia.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), received a Cultural Commendation for a fine specimen of Cypripedium insigne Sanderianum with ten flowers. He also sent two fine spikes of Cymbidium Tracyanum.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis) sent Cypripedium × Actæus Fowler's var., a fine form with most of the dorsal sepal white.

J. H. Hill, Esq., Burgess Hill, Sussex, sent a small group of Odontoglossum crispum, O. × Phœbe, a good white Lycaste Skinneri, and several Cypripediums.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), sent a pretty Lælio-cattleya, derived from L.-c. Massangeana and C. Dowiana aurea, having canary yellow sepals and petals, and the lip rose-coloured, with some yellow veining; also Cypripedium insigne, Holford's var., a very fine seedling form raised from C. i. purpureum crossed with C. i. Harefield Hall var., and much resembling the latter, except in its dwarfer scape, round flowers and very broad lip. The dorsal sepal is white on the upper half, and yellow below, with enormous purple blotches.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), sent Cattleya × Maggie Raphael var. Streatham (C. Trianæ alba × Dowiana aurea), a very pretty variety having white sepals and petals, and a rose-coloured lip veined with yellow.

G. P. Walker, Esq., Heatherwood, Putney (gr. Mr. McGregor), sent Odontoglossum × laudatum var. Walkerianum (× Wilckeanum ×

ardentissimum), a fine hybrid having a whitish ground colour, heavily blotched with red-brown over two-thirds of the segments.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium × Actæus Golden Gem (C. insigne Chantinii Lindenii × Leeanum virginale), a pretty greenish yellow flower with a white apex to the dorsal sepal, and C. × The Premier (M. de Curte × Mrs. Wm. Mostyn), a fine hybrid having broad yellow petals and lip, tinged and marked with purple-brown, and the dorsal sepal emerald green above and heavily blotched with dark chocolate below, becoming violet-purple near the white margin.

Messrs. Charlesworth & Co., Hayward's Heath, received a Silver Flora Medal for a choice group, including a finely blotched Odontoglossum × Lambeauianum, O. × crispo-Harryanum, O. × Eleanor, and others, Lælia anceps waddonensis, L. Gouldiana, the brilliant Odontioda Bohnhofiæ, Trichopilia suavis, Gomesa planifolia, Lælio-cattleya Lusitania, Cypripedium insigne citrinum, C. × Leeanum, and others. A First-class Certificate was given to Brasso-cattleya Cliftoni (B.-c. Digbyano-Mossiæ × C. Trianæ), a very fine hybrid most like the former, but larger, and the sepals and petals delicately tinted with lavender, while the broad lip is white, and fringed with some purple markings behind the yellow disc.

Messrs. Armstrong & Brown, Tunbridge Wells, received a Silver Flora Medal for a large and handsome group, containing a fine series of Cypripedium insigne and C. × Leeanum varieties, with numerous other good things. An Award of Merit was given to Cypripedium Armstrongii, said to have been imported with C. Spicerianum, and most like it, though considerably enlarged. The dorsal sepal is white, with a small green base, and a purple band up the centre, the petals decurved, undulate on the upper margin, yellow, with some purple hairs and spotting, and the lip reddish-brown in front. It was suggested to be a natural hybrid, but the point is not at all clear.

Messrs. Sander & Sons, St. Albans, staged a fine group, to which a Silver Flora Medal was given. It contained some good Oncidium varicosum, Odontoglossum crispum Belerophon, a handsomely blotched home-raised seedling, a good example of Pleurothallis Scapha, a Lælia suspected to be a natural hybrid between L. albida and L. furfuracea, Bulbophyllum crassipes, Cypripedium × Actæus nivalis, C. Charlesworthii Téméraire, a remarkable variety, having the dorsal sepal much elongated, and white, veined with lilac-rose, and the petals and lip greenish yellow, with some purple veining on the former. An Award of Merit was given to C. × Troilus var. Lord Nelson (insigne Harefield Hall var. × nitens), a very fine variety, having the dorsal sepal yellowish at the base and white above, and heavily blotched with purple.

Messrs. James Cypher & Sons, Cheltenham, were awarded a Silver Flora

Medal for a fine group, including some good Dendrobium Phalænopsis and Lælia anceps, Vanda cœrulea, Oncidium Papilio, Brassocattleya Pluto, B.-c. Digbyano-Schrœderæ, Calanthes, a fine series of Cypripedium insigne and C. × Leeanum, and other good things.

Messrs. J. and A. A. McBean, Cooksbridge, also received a Silver Flora Medal for a beautifully arranged group of Odontoglossum crispum, with many good Cypripedium insigne Sanderæ, a very fine example of C. × nitens magnificum Ball's var., C. × Parkinsonianum, C. Thompsoni magnificum, and many other good things.

Messrs. Hugh Low & Co., Enfield, received a Silver Banksian Medal for a good group, including some fine Oncidium varicosum, one called Bush Hill Park var. having a red-brown blotch at the base of the lip, Cycnoches maculatum, C. chlorochilon, some good Cypripedium insigne and C. × Leeanum, C. × Thalia giganteum, C. × aureum, C. × Tracyanum, &c.

Messrs. Moore, Ltd., Rawdon, Leeds, also received a Silver Banksian Medal for a good group of Cypripediums, Odontoglossum, &c., noteworthy examples of the latter being O. × excellens, O. × Vuylstekei and O. × Wilckeanum.

Mr. H. A. Tracy, Twickenham, received an Award of Merit for Dendrobium Cœlogyne striatum, having yellowish sepals and petals striped with chocolate purple, and the lip dark purple.

Messrs. Heath & Son, Cheltenham, staged a nice group of Dendrobium Phalænopsis, Vanda cœrulea, Oncidium varicosum, Cypripediums, &c.

At a meeting held on December 22nd there was again a very fine display, and the awards consisted of five medals, three First-class Certificates, three Awards of Merit, two Botanical Certiflcates, and two Cultural Commendations.

F. Menteth Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), received a Silver Flora Medal for a good group of Cypripediums, Lycastes, &c., the latter including three good plants of L. Skinneri alba, with L. × hybrida and L. × Balliæ.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), showed a good selection of hybrid Calanthes, &c. A First-class Certificate was given to C. × Angela (C. × burfordiensis × Chapmanii), a very beautiful hybrid having the large three-lobed lip deep ruby-purple, and the sepals and petals lighter in colour, and an Award of Merit to C. × Norman (C. vestita gigantea × v. rubro-oculata), rather larger than the preceding and paler in colour, the sepals and petals being rose-purple, the former tipped with white, and the lip mauve-purple. A Cultural Commendation was given to a fine plant of Cypripedium × Leeanum Clinkaberry-anum with fifteen flowers.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), received a Cultural Commendation for a fine plant of Cœlogyne Mooreana bearing two spikes, and a First-class Certificate for Cypripedium × Antinous (C. × J. Howes × Actæus), a handsome hybrid having the dorsal sepal white, blotched with purple on the lower half, and the petals and lip yellow with a trace of green veining. He also sent C. × Beacon (C. × J. Howes × nitens-Leeanum) and a fine example of Oncidium × Mantinii.

Sir Trevor Lawrence, Bart,, K.C.V.O., Burford (gr. Mr. White), received Botanical Certificates for Dendrobium elongatum, a pretty little Javan species allied to D. cymbidioides, but having a longer raceme of smaller flowers, and to Epidendrum punctiferum, an ally of E. inversum, with greenish flowers and a few purple spots at the base of the lip. He also sent a Sophrolælia hybrid raised from Sophronitis grandiflora and Lælia Jongheana.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Cymbidium × rosefieldiense (Tracyanum × grandiflorum), which should develop into a very fine thing.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent a well-formed Odontoglossum crispum with very large flowers.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Cypripedium × Felicity.

R. G. Thwaites, Esq., Streatham (gr. Mr. Black), sent a selection of the pretty light form of Cattleya × Maggie Raphael, previously exhibited.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent a pretty yellow Lælio-cattleya, and Cypripedium × Ernest Swinton (Godefroyæ × beechense), having beautifully variegated leaves, and a cream white flower densely blotched with claret-purple.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a choice group, the more noteworthy plants including the rare and handsome Oncidium loxense, Lælia autumnalis alba, some good forms of L. anceps, Cypripedium × Penelope (C. × Hitchinsiæ × Leeanum), a pretty coloured form, and a pretty Odontoglossum called O. Mooreanum, of somewhat doubtful affinity, having light yellow, undulate sepals and petals, spotted with brown, and a heart-shaped crimson blotch on the lip. A First-class Certificate was given to Odontoglossum × Magali Sander (O. × Rolfeæ × Adrianæ var. F. K. Sander), a very fine hybrid having round cream-coloured flowers, densely spotted and blotched with purple, and a very broad, white, somewhat fringed lip with rich purple markings. An Award of Merit was given to Oncidium bicallosum Sander's var., a good form of the species.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a choice group, including a number of good Odontoglossums, a fine specimen of Vanda lamellata Boxallii, the elegant V. Watsoni, figured

as the frontispiece of our last volume, a well-flowered plant of Gongora quinquenervis, Lælio-cattleya Charlesworthii princeps, &c.

Messrs. J. and A. A. McBean, Cooksbridge, received a Silver Flora Medal for a fine group, consisting largely of Odontoglossum crispum, and including O. c. majesticum, a handsome white form, having a few blotches on the sepals, also a heavily blotched variety. There were also some good forms of Lælia anceps, L. autumnalis with seven spikes, and a number of good Cypripediums.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a fine group, including the handsome Cypripedium × C. F. Sander, C. × Minos Youngii, C. × triumphans, C. × Thompsoni, good varieties of C. × Euryades and insigne, &c.

Messrs. James Veitch & Sons, Chelsea, sent Cypripedium × Thalia splendens, C. × Crusader, and C. × elatior (Leeanum × Baron Schröder), the latter, a large and handsome form, with the dorsal sepal white, tinged and blotched with deep purple, gaining an Award of Merit.

Messrs. Armstrong & Brown, Tunbridge Wells, sent Cypripedium × Minos Youngii, and C. × Helen II. var. Armstrongiæ, the pretty light-coloured variety figured at page 105 of our last volume.

Messrs. Hugh Low & Co., Enfield, sent a small group, including Cypripedium × Tracyanum, C. × Helen II., C. × Minos Youngii, some good varieties of C. insigne, &c.

M. Mertens, Ghent, sent a few good hybrid Odontoglossums.

Mr. H. A. Tracy, Twickenham, sent the pretty Cypripedium × Goodsonianum.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AT the meeting held in the Coal Exchange, Manchester, on December 3rd, a keen disappointment awaited the members, a letter being read from O. O. Wrigley, Esq., Bridge Hall, Bury, stating that he had intended to send a large exhibit of his best Cypripediums, but a thick "Lancashire special" fog prevailing had deterred him at the last moment. An excellent show, however, was provided, and over fifty plants were placed before the Committee, who were present as follows: Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Cowan, Ward, Sander, Warburton, Ball, Shill, Keeling, Holmes, Ashton, Cypher, Parker, and Weathers (Secretary). It may be interesting to note that the plants known as Cypripedium insigne Francis Wellesley and C. i. Baron Schröder were unanimously declared by the Committee to be C. i. Harefield Hall var., and must in future be exhibited as such at the Society's meetings.

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a very bright and interesting group, which gained the Society's Silver-gilt Medal.

Many interesting Odontoglossums were present, including some well-flowered O. crispum of large type, O. × Lambeauianum var. Jaspar, O. × ardentissimum var. Lawrencei, O. × Vuylstekei, O. × amabile, O. × Wilckeanum, &c., also some good plants of Cypripedium × Leeanum Clinkaberryanum, C. × aureum Ward's var., C. callosum Sanderæ, Oncidium tigrinum, &c.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a fine group, composed chiefly of Cypripediums. The fine C. × Leeanum Lavertonianum, shown in grand form, gained a First-class Certificate. An effective seedling variety of C. insigne (i. Dormanianum × i. Harefield Hall var.), named Dorman-Harei, gained an Award of Merit, as did also C. × Floradora and C. × Lord Ossulston var. Grace Osborne. We noted also C. × Bertie, C. × Gaston Bultel, C. × beechense superbum, C. × Leeanum Corona, C. × Victor, C. insigne Warburtonianum, and many others of merit, with Cattleya chocoensis alba, C. × Dusseldorfii, &c. (Silver-gilt Medal).

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), staged a pretty group of excellent quality, which was awarded a Silver Medal. I noted Cypripedium × Thalia Mrs. F. Wellesley, C. × T. giganteum, C. × Madeline, C. × Elmireanum, C. × Purity, C. × alportense, C. × St. Albans, C. insigne Harefield Hall var., C. Fairrieanum var. Orpheus, &c.

Chas. Parker, Esq., Ashton-on-Ribble, Preston, gained a Silver Medal for a fine group of Cypripediums, an Award of Merit and Cultural Certificate going to a fine plant of C. × Arthurianum Stand Hall. var., bearing twelve flowers. I noted C. × Baron Schröder, C. × Maudiæ, C. insigne Harefield Hall var., C. i. Lucianum, C. × Milo Prestona, C. × Leeanum Clinkaberryanum, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged an effective group, chiefly of Cypripediums. I noted C. × Euryades, C. × memoria Moensii, C. × Arthurianum, C. insigne Chantini Lindeni, Lælia anceps Amesiana, &c. (Silver Medal).

John Stott, Esq., Radcliffe, gained a Bronze Medal for a small group, containing Cypripedium insigne Youngianum, C. × Leeanum giganteum, Odontoglossum puichellum, and two or three plants of Lycaste Skinneri.

Ed. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), sent Odontoglossum crispum Lord Lansdowne and O. c. ardwickense, both being very good forms and gaining Awards of Merit. Cypripedium × Actæus var. Sanderæ also received an Award of Merit. I noted C. × Priam var. virginale and C. × incurvum (Vote of Thanks).

J. J. Holden, Esq., Southport (gr. Mr. Johnson), sent Cypripedium × alportense and C. × Leeanum var. Bruxelles, the latter gaining an Award of Merit.

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent good plants of Cypripedium × triumphans, C. × Actæus langleyense, and C. × The Duchess, var. Corneyanum.

Messrs. Cypher & Son, Cheltenham, received a Silver-gilt Medal for a fine group, consisting almost wholly of Cypripediums. I noted C. × Minos Veitchii, C. × Leeano-Swinburnei, C. × Charlesianum Cypher's var., C. × Actæus Keeling's var., C. × Tityus superbum, C. × Alcibiades, C. insigne Harefield Hall var., C. i. Lucianum, C. i. aureum, C. i. Sanderæ, C. i. heatonense, &c., also a well-flowered plant of the beautiful Masdevallia Schrœderiana.

Messrs. A. J. Keeling and Sons, Westgate Hill, Bradford, were awarded a Silver Medal for a nice group. A curious Catasetum species bearing a spike of eight spider-like flowers was given a First-class Botanical Certificate. I noted also Dendrobium × xanthocentrum, D. × Apollo, D. × Hebe, many Cypripediums, Lelio-cattleya Diogenes, Epidendrum ciliare, Odontoglossum bictoniense, &c.

Messrs. Moore & Co., Rawdon, Leeds, gained a Silver Medal for an interesting group, including the brilliant Habenaria militaris, Warscewiczella velata, Cypripedium × Leeanum Queen of Portugal, C. × Harrisianum superbum, C. Fairrieanum with good dark dorsal sepal, C. insigne aureum, and others.

Mr. W. Shackleton, Great Horton, Bradford, gained a Bronze Medal for a group of Cypripediums and Odontoglossums, in which I noted two good plants of C. insigne Cobbianum.

Messrs. Owen, Nurserymen, Hartford, Northwich, staged a good group, consisting of many varieties of Cypripedium insigne, and were awarded a Bronze Medal.

Messrs. Heath & Sons, Cheltenham, staged a small group of choice things, in which I noted Cypripedium × Swinburnei magnificum, C. × Daphne, C. × Leeanum Fowleri, C. × L. giganteum, C. × L. Clinkaberryanum, C. insigne Dormanianum, C. i. Agatha, &c. (Bronze Medal).

Mr. J. Robson, Altrincham, sent a good plant of Cypripedium × Lord Ossulston, C. × Minos Youngii, C. × Parkerianum, a good plant with excellent flowers of C. × Leeanum Keeling's var., and a nice hybrid from C. insigne Sanderæ × C. × Lathamianum.

Mr. W. Bolton, Wilderspool, Warrington, sent a good specimen of Cypripedium × Niobe with four fine flowers.

Mr. D. McLeod, Chorlton-cum-Hardy, sent Cypripedium insigne The Queen, C. i. Dormanianum, and several cut flowers.

Messrs. Sander & Sons, St. Albans, sent Cypripedium × Harrisianum superbum, G. S. Ball's var., a flower of excellent size and colour.

AT the meeting held on December 17th there was a magnificent exhibition of plants and flowers of a high degree of excellence. Over seventy exhibits were placed before the Committee, which sat fully two hours and a-half, and awarded five First-class Certificates, and sixteen Awards of Merit. Committee present: Messrs. E. Ashworth (Chairman), R. Ashworth, J. Cowan, jun., Z. A. Ward, A. Warburton, W. Holmes, G. S. Ball, A. J. Keeling, J. E. Shill, F. W. Ashton, H. H. Smith, F. K. Sander, J. Cypher, C. Parker, H. Thorp, and P. Weathers (Secretary).

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), staged a magnificent group of Cypripediums, relieved with ferns, which covered over thirty feet of staging and gained the Society's Gold Medal. In the centre were many choice albinos, C. × Minos Youngii, C. × Sir Redvers Buller, C. × St. Alban, C. × Goldona, and other well-known things, with several good C. insigne varieties. At one end stood a nice group of C. Fairrieanum, several of which had very dark dorsal sepals.

Z. A. Ward, Esq., Cringlewod, Northenden (gr. Mr. Weatherly), staged a very choice group, consisting chiefly of Odontoglossums, which received a Silver-gilt Medal. I noted the highly-coloured O. × Vuylstekei with a fine spike, O. × crispo-Harryanum, O. × loochristiense, O. × Rolfeæ, O. × ardentissimum Lawrencei, O. × Jaspar, O. × Lambeauianum, and a well-flowered O. × Wilckeanum, with a few good Cypripediums bearing upwards of half-a-dozen flowers each.

Ed. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), staged a nice group of Cypripediums of extra quality. Cypripedium × ardwickense gained an Award of Merit, also C. × Charles-Hitchinsiæ (Charlesworthii × Hitchinsiæ), a fine flower with nearly circular dorsal sepal, and C. × Troilus Fielden Park var. I noted also C. × Leeanum Keeling's var., still one of the best, C. × Actæus langleyense, C. × Maudiæ, C. × Venus Oakdene var., the well-blotched Odontoglossum crispum Rogersonæ, and O. c. Stanley Rogerson with a spike of thirty flowers (Silver Medal).

G. Shorland Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), sent a well-grown batch of plants, all of good quality. The beautiful Cypripedium × Germain Opoix Westfield var. gained a First-class Certificate, while C. × A. Dimmock and Chondropetalum Fletcheri received Awards of Merit. I noted a very fine Cypripedium Charlesworthii, C. × The Earl, C. × Miss Louise Fowler, C. × Alcibiades, C. × Ville de Paris, C. × Minos Youngii, C. × Prospero majus, &c.

D. O. Drewett, Esq., Riding Mill-on-Tyne (gr. Mr. Renwick), gained a Silver Medal for a fine group of well-grown Cypripediums, chiefly seedling insignes, raised by intercrossing the best varieties. C. i. James Renwick, specially fine in form and markings, gained a First-class Certificate, while C. i. Northumbria and C. i. The Sultan gained Awards of Merit. The

abnormal C. Spicerianum Orchidhurst var. and C. × Mary Lee, Drewett's var., received the same awards.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a group of Cypripediums of uniform excellence, in which I noticed many previously certified plants, as C. × fulshawense, C. × Mrs. Cooper Quinn, C. × Eve, C. × Gaston Bultel var. King Edward VII., C. × Euryades Sander's var., C. × Mrs. Tautz, &c. C. × Marjorie Warburton's var. gained an Award of Merit, as also did a fine Oncidium Forbesii, in which all the spotting had solidified in one large blotch, having a narrow margin of yellow on each sepal.

Richard Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), staged a very bright and interesting group of mixed plants, which merited the Silver Medal awarded. It contained such fine things as Cypripedium × Maudiæ, C. × Leeanum Keeling's var., C. insigne Lucianum, C. i. Harefield Hall var., Miltonia × Bleuana, Trichopilia suavis, a very pretty Lycaste Skinneri, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), also received a Silver Medal for a fine group, including Cypripedium insigne Harefield Hall var., C. i. Sanderæ, C. × Arthurianum, C. × Milo Youngii, and half-a-dozen varieties of Lycaste Skinneri, well-leaved and flowered.

Chas. Parker, Esq., Ashton-on-Ribble, staged a group of Cypripediums which gained a Silver Medal. I noted fine well-flowered plants of Cypripedium insigne Harefield Hall var., C. i. Sanderæ, C. i. Youngianum, C. × Arthurianum Stand Hall var., C. × triumphans, some good forms of C. × Leeanum, &c.

H. Arthur, Esq., Blackburn, sent a mixed group, including Cymbidium × Winnianum, C. Tracyanum, Cypripedium Fairrieanum, several good varieties of C. insigne, &c. (Silver Medal).

J. Stott, Esq., Radcliffe, staged a group, which included several varieties of Cypripedium × Leeanum and C. insigne, with Lycaste Skinneri, &c. (Bronze Medal).

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent Cypripedium insigne Aberdeen, C. × Euryades splendens, and C. × Cravenianum.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent two very pretty unnamed hybrid Cypripediums, from C. × Minos Youngii × C. × Euryades New Hall Hey var., and C. × Sallieri Hyeanum × C. × œnanthum superbum.

E. Ashworth, Esq., Wilmslow (gr. Mr. Holbrook), sent a good albino seedling raised by crossing Cypripedium insigne Sanderæ with C. i. Kimballianum, in which all the spotting of the former and the dark hairs of the latter were entirely suppressed. It is curious to note that of four plants

flowered two were ordinary insigne and two albinos. The latter was named C. i. Sanderæ-Kimball, E. Ashworth's var., and received a First-class Certificate.

S. Gratrix, Esq., Whalley Range (gr. Mr. Shill), gained a First-class Certificate for a fine Cypripedium named Sir W. H. Houldsworth.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a very fine group of Cypripediums, which gained the Society's Silver-gilt Medal. It included many fine plants of the best varieties of C. insigne and C. × Leeanum, with C. × Ville de Paris, C. glaucophyllum, C. × Niobe, C. × nitens G. S. Ball's var., &c., all in robust condition. The fine hybrid C. × Helen II. (C. insigne Harefield Hall var. × bellatulum) received a First-class Certificate.

Messrs. James Cypher & Son, Cheltenham, staged a very effective group, chiefly Cypripediums, which was awarded a Silver Medal. I noted a good Cypripedium × Charlesianum Cypher's var., C. insigne Dormanianum, C. i. heatonense, C. i. Bohnhofianum, C. × Leeanum Cypher's var., C. × L. aureum, C. × Miss A. Moore, a good blotched Odontoglossum crispum, and a fine O. × ardentissimum.

Mr. J. Birchenall, Alderly Edge, staged a small but interesting group, including a strong plant of Gongora quinquenervis with three long spikes and as many others just showing, a very striking and decorative plant which gained a First-class Botanical Certificate. Cymbidium Mastersii album and Schlimmia trifida gained the same award. I noted also Restrepia antennifera, Cochlioda rosea, Odontoglossum crocidipterum, &c. (Bronze Medal).

Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford, staged a mixed group, which included Cattleya Percivaliana with a good lip, C. Harrisoniana, Cypripedium × Leeanum Keeling's var., Lælia anceps, Calanthes, &c. (Bronze Medal).

Mr. W. Shackleton, Gt. Horton, Bradford, staged several Cypripedium insigne varieties, including Harefield Hall and fastuosum, with C. × Leeanum giganteum, C. Spicerianum, &c. (Bronze Medal).

Mr. J. Robson, Altrincham, sent several well-grown Cypripediums, including C. × Euryades, C. Leeanum giganteum, C. × L. Keeling's var., and C. × Courtlandianum (Exquisite ?), the latter gaining an Award of Merit.

Messrs. Hugh Low & Co., Enfield, sent three or four plants of Oncidium varicosum Rogersii with good spikes.

Messrs. Moore & Co., Rawdon, Leeds, sent Cypripedium × Sallieri var. Crab, C. × Simoni giganteum, C. × *Z*eus superbum, and Odontoglossum Rossii majus with a very broad lip (Vote of Thanks).

Mr. Wm. Bolton, Wilderspool, Warrington, sent a box of choice cut flowers, all showing evidence of vigorous growth (Vote of Thanks).

STORING POLLEN.

ABOUT a year ago several most interesting articles upon the subject of stored pollen appeared in the *Orchid Review* (xvi. pp. 35, 65, 111). I have been experimenting upon the subject for two years, more especially upon the pollen of Cypripediums (Paphiopedilum). My experiments are now more or less complete, and the results may be of interest. I enclose an old tube (the design is old also) containing pollen of C. insigne Youngianum, which has been undisturbed since December 6th, 1907. I also enclose a new tube which I think is as perfect as it can be made. It is equally suitable for soft or hard pollen (for the hard varieties the tube is simply used as a bottle).

My own results have been most encouraging from the first, and I have tried pollen up to twelve months' old with unvarying success. I have not yet tried older pollen, but there seems to be no reason why it should not keep for twelve years as easily as for twelve months! It is a curious fact the flowers, fertilised with old pollen, go off more rapidly after pollination. In two cases nine days have sufficed to prove success. This I believe to be due to some slight change in the condition of the greasy covering which envelopes the pollen proper. The pollen tends to become if anything more liquid with age, and shows no sign of dryness. The principle is to keep the pollen dry by means of calcium chloride. The dry air then prevents absolutely any germination of mould spores, &c. I have now several very large capsules on my plants which have resulted from stored pollen.

There seems to be no difference in the time taken to ripen the capsules. In one case (Exul × Lathamianum) in which the pollen had been stored for four months, the capsules ripened only after sixteen months. It contained what was apparently (when examined microscopically) perfect seed in abundance, there being scarcely any "chaff." The seed of this cross was sowed on August 8th last, and should appear in the coming spring My collection is only a small one of about 200 plants, and I find the tubes most useful. They enable me to make crosses which would otherwise be out of the question, owing to the difference in the time of flowering.

I recently sent a tube of pollen, eleven months old, to a well-known Orchid firm, with the request that they would be kind enough to verify my results. I was advised a short time ago that the cross tried had been quite satisfactory (it was Fairrieanum × Leeanum giganteum). So pleased were they with the results that I have agreed to allow the tube to be put upon the market, and it has consequently been registered. F. H. SMITH.

"Chez Nous," Sherwood, Nottingham.

[The pollen sent appears quite healthy, but experiment can alone decide what the dessicating effect of calcium chloride may be.—ED.]

NOTICE OF BOOK.

Thirty-nine Articles on Gardening. By Emmeline Crocker, F.L.S. London, Dulau & Co., pp. 142, with an Index and seven coloured plates.

A series of pleasantly-written newspaper articles, chiefly devoted to gardening in the open air, which originally appeared in *The World*, and are now reproduced in book form, with the addition of seven coloured plates, and an Index. It is dedicated "To all plant lovers." Orchids scarcely come within the scope of the work, yet somehow we learn that in Ceylon Phaius was being "abused, uprooted, and denounced as a weed," while "a dandelion was being cherished and encouraged to grow with the greatest care;" also that Calypso borealis thrives well in half-shady spots on the margin of a rock-garden or artificial bog, in a light moist vegetable soil composed of peat, leaf-soil, and sand. In one "well-organised, first-class garden" we learn, among a few other details, that in July "the Calanthes, Anguloa, and Lycastes were getting nourishment, and one ingredient of the dose they told me was 'sut.'" We almost wish Miss Crocker could have added one more article, devoted to Orchids, and we wonder how she managed to avoid it, considering that she devotes two articles to Glasnevin, and wonders whether the Orchid house should not rank first in point of interest. But all she says is: "No matter what the temperature or atmosphere outside, or the time of year, you may be sure a good group of Orchids in prime flower will greet you directly you open the door of their house. It would be foolish to attempt to give details of the fine species." We do not at all understand why it should be so, and we fear that Orchidists into whose hands the book may fall will lay it down with a feeling of disappointment.

ODONTOGLOSSUM × GROGANIÆ.

THIS interesting hybrid was raised in the collection of J. H. Grogan, Esq., Slaney Park, Baltinglass, Co. Wicklow (gr. Mr. Skinner), and was noted at p. 364 of our last volume. Mr. Grogan writes that we have got the parentage "the wrong way round." It should have read O. Uroskinneri × Edwardii, the latter being the pollen parent. He adds: "This hybrid is a good example of what may be gained by perseverance. In the spring of 1904 I had a fine spike of 36 buds on a very fine variety of O. Uroskinneri. I fertilised every one of these flowers as it came out with the best pollen I could obtain at the time, and not one of them would take. When I came to the last flower the only pollen I had available was from a good variety of O. Edwardii, and this I used, not in the least expecting to get a pod, as I have found that Edwardii pollen is practically useless. To my astonishment a fine seed pod developed, and in due time the seed ripened, germinated, and

the little plants throve apace, with the present result. The plant exhibited had an inflorescence of 58 flowers and buds, and this on the first bulb from the seed-bulb. I believe Uroskinneri hybrids have a bad name, but these are tremendous growers. I have one that made up the seed bulb as big as a fair-sized hen's egg. It is like the seed parent in its character of opening a few blooms at a time, but each individual flower lasts for weeks in perfection. Another plant is now flowering.

"I have since then fertilised dozens of Uroskinneri flowers but failed to get a pod, and the only other plants that I have succeeded in getting seed pods on by Edwardii have been Cochlioda Nœtzliana, and I have a nice lot of seedlings of these. I don't know that it would have made much difference to the flower had the cross been the other way round, but it certainly would have been easier to have got it, as O. Edwardii seems to set seed pods and produce good seed with nearly anything. I wonder whether anybody has tried putting *Zygopetalum* Mackayi on it? It would be an interesting experiment. I have not got any of the latter Orchid myself, but if I can get some good flowers when my Edwardii's are out I will try it this season."

[We should like to see this cross tried.—ED.]

ROOT-STRUCTURE.

AT the fortnightly meeting of the Sevenoaks Gardeners' Society, held on December 15th last, the first of a series of three lectures on "The General Structure of Plant Roots" was given by Mr. Lionel Crawshay, F.R.H.S. The structure and functions of plant-roots was dealt with very fully, and the difference between them and subterranean forms of stem was pointed out, as well as the importance of the root-hairs and the root-cap. In considering different forms of roots the lecturer mentioned the special absorbent apparatus of many tropical Orchids. As all who have seen them must have noticed, the rhizomes of many Cattleyas and Lælias usually extend some distance beyond the matrix upon which the plant grows. The roots then hang down in the air, and it is evident that they cannot come into contact with any nutrient medium. Much the same sort of thing takes place in their native home, and they are consequently clothed with a jacket of absorbent cells, which extends throughout their whole length except the apex, giving them a white and swollen appearance. This is called the velamen, and the cells being highly absorbent they are able to extract the moisture from the air in the same way as the root-hairs draw it from the soil. The question of root-bacteria and the nodules found on the roots of Leguminosæ were also mentioned, and it was remarked that the Nitro-Bacterine treatment of crops was of little use where there is already a normal development of bacteria in the soil.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during January, on the 12th and 26th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on January 7th, 21st, and February 4th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

AN EARLY ORCHIS.—It was interesting to see half-a-dozen plants of the rare Orchis saccata in flower in the Alpine house at Kew, before Christmas. It is a Mediterranean species, and has green sepals and petals, with some brown markings, and a whitish lip tinged with purple. The plants were grown in a cold frame.

ORCHID PORTRAITS.

CŒLOGYNE CRISTATA LEMONIANA.—*Journ. Hort.*, 1908, ii. p. 537, with fig.

CYPRIPEDIUM × ARETHUSA.—*Journ. Hort.*, 1908, ii. p. 561, with fig.

CYPRIPEDIUM × DREADNOUGHT.—*Gard. Chron.*, 1908, ii. p. 389, fig. 162.

CYPRIPEDIUM × SANACTÆUS ETONIENSE.—*Gard. Chron.*, 1908, ii. p. 416, fig. 171.

DENDROBIUM CŒLOGYNE VAR. STRIATUM.—*Journ. Hort.*, 1908, ii. p. 585, with fig.

EPIDENDRUM COSTATUM.—*Gard. Chron.*, 1908, ii. p. 425, fig. 173.

ERIA HYACINTHOIDES, Lindl.—*Bot. Mag.*, t. 8229.

ONCIDIUM KRAMERIANUM.—*Gard. World*, 1908, p. 779, with fig.

SOPHRO-CATT-LÆLIA MEDEIA BICOLOR.—*Journ. Hort.*, 1908, ii. p. 633, with fig.

SOPHROCATTLEYA DORIS.—*Garden*, 1908, ii. p. 609, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

E.D. Cirrhopetalum pulchellum.

C.R., L. & H., and several others. Unavoidably held over till next month.

Photographs received, with thanks. H A., L. & H., W. B. & Sons.

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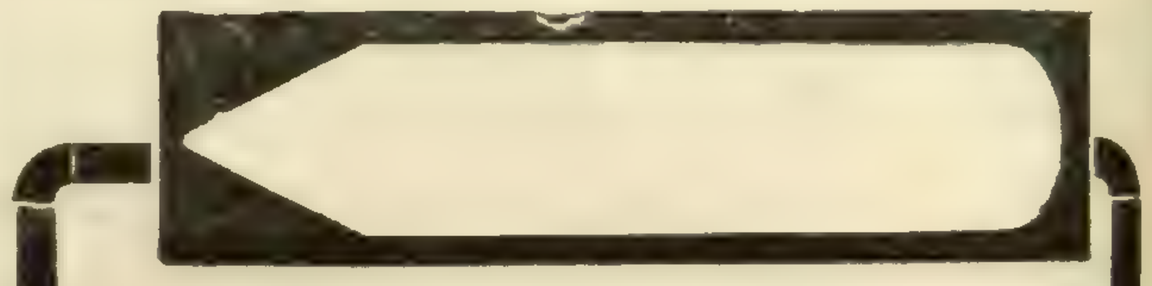

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An Illustrated Journal of Orchidology.

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THE TWENTY BEST HYBRID CYPRIPEDES.

HAVE not the writers of the articles in your last two issues made a mistake in the title? "The twenty most expensive Cypripedes" would have been rather more appropriate. We are not all millionaires, but we love Orchids none the less, and can manage to get a good show of flowers that do not work out at about £100 per bloom. Of course we like to know what these best varieties are, and hope to see the day when some of them will come within our reach. But will they be quite as highly appreciated when they can be purchased for 3s. 6d. each? Not so very long ago Cypripedium insigne Sanderæ was sold at quite a prohibitive price, and some of us wondered whether it would ever be included in our collections. Just as this seemed possible we read that someone was trying to make a "corner" in it, but happily the rumour proved false, and now it is accessible to everybody. But it is none the less beautiful, because all of us can enjoy the possession of it. I wonder how much this beautiful plant has done to popularise cool Orchid growing? There is now a hybrid closely resembling it, which I had the pleasure of seeing last autumn, namely C. × Bianca superbum, yet it was not included in either of the lists mentioned, though names of later date, and surely of less beauty, were included.

Nearly all the best winter flowering hybrids have C. insigne in them in some form or other, and if the list were limited to winter-blooming kinds one might include most of the hybrids with its own section. These are C. × Leeanum (with Spicerianum), C. × nitens (with villosum), C. × Schlesingerianum (with Boxallii), C. × Hitchinsiæ (with Charlesworthii), and C. × Arthurianum (with Fairrieanum), and all are forms of sterling merit. Then other combinations between the species mentioned include C. × Lathamianum (Spicerianum and villosum), and C. × Niobe (Spicerianum and Fairrieanum), which can scarcely be omitted. These crossed among themselves have given a number of very beautiful secondary hybrids, the best of which are C. × aureum (Spicerianum and Leeanum) and C. × Hera (Boxallii and Leeanum), with their varieties. From these alone twenty easily grown, free-flowering, and highly decorative hybrids can easily be selected which are within the reach of all Orchid growers,

and with a few of the numerous good and distinct varieties of C. insigne and other winter-blooming species, it is possible to have a good supply of flowers throughout the whole of late autumn and winter, when they are most useful.—AMATEUR.

Under the title "A Selection of Cypripediums" appears the following in the last issue of the *Journal of Horticulture* (p. 78) :—

"In your contemporary, the *Orchid Review*, a list of the supposed best twenty Cypripediums has been given, and being a reader and contributor to the *Journal of Horticulture*, I thought a similar list would be interesting, and herein append twenty names which, in my estimation, represent the Cypripediums of the front rank to-day.

C. × Actæus langleyense.
C. × Æson giganteum.
C. × Alcibiades magnificum.
C. × Bianca superbum.
C. × Dreadnought.
C. × elatior.
C. × F. K. Sander.
C. × Germaine Opoix, Westfield var.
C. × Helen II., Westonbirt var.
C. × Leeanum J. Gurney Fowler.
C. × Maudiæ magnificum.
C. × Minos Youngii.
C. × nitens-Leeanum Hannibal.
C. × Priam.
C. × Thalia giganteum.
C. × Thalia Mrs. Francis Wellesley.
C. × The Baron.
C. × Troilus Cravenianum.
C. × Troilus eboraicum.
C. × Sultan.

"The above list is undoubtedly interesting from a connoisseur's point of view, but for general purposes it is not of much value, because many are extremely rare and command high prices. Among those offered by public auction are C. Thalia Mrs. F. Wellesley, which realised £300; C. Germaine Opoix, Westfield var. £294; Æson giganteum, £231; and C. The Baron, £126.

"For the benefit of amateurs and others who grow Cypripediums from the decorative standpoint, I add twenty which may be purchased in quantity :—

C. × Actæus.
C. × Arthurianum pulchellum.
C. × aureum virginale.
C. × Baron Schröder.
C. × Harrisianum superbum.
C. × Hera Euryades.
C. × Hitchinsiæ.
C. insigne Sanderæ.
C. insigne Harefield Hall var.
C. × Lathamianum.
C. × Leeanum Clinkaberryanum.
C. × Madame Jules Hye.
C. × Maudiæ.
C. × Mons. de Curte.
C. × Mrs. W. Mostyn.
C. × Niobe.
C. × nitens.
C. × œnanthum superbum.
C. × Rolfei.
C. × Tityus superbum.

"I should be glad to hear other readers' views on this subject, as Orchids will in future form part of the general work of a gardener, and not be confined to the specialist.—SENTINEL."

Fourteen out of the twenty names in the first list are identical with those given by Mr. Wellesley at page 353 of our last volume, the additions being C. × Bianca superbum, C. × elatior, C. × Minos Youngii, C. × nitens-Leeanum var. Hannibal, C. × Priam, and C. × Troilus eboriacum, which displace C. × Beeckmanii, C. × Gaston Bultel, var. King Edward, C. × Helen II. Orchidhurst var., C. × Mr. F. Sander, C. × Actæus var. etoniense, and C. × The Premier, which shows that there is plenty of room for individual taste.

The second is a good list for general purposes, but it will be noticed that it includes two which are not hybrids.

We have arranged both lists alphabetically for convenience of comparison, and have omitted the parentage and raiser, which was appended to the first list.—ED.

ODONTOGLOSSUMS.

THE first meeting of the Bristol Gardeners' Society for 1909 was held on January 12th, when Col. Carey-Batten presided over a good attendance. As President of the Society, the Colonel invariably presides at the first meeting in the year. Needless to say this kindly act is much appreciated. It was appropriate that the topic should be upon Orchids, for the President is an enthusiast where these are concerned, and has a fine collection at Abbots Leigh. An interesting paper upon "Odontoglossums" was given by Mr. Wakefield, gardener to Mr. Shipley, Elmfields, Westbury-on-Trym. In the course of his remarks the lecturer recommended a day temperature of 55deg., falling to 50deg. at night; September being the best month for general potting. The plants are then able to recuperate before the dull winter months set in. Over-potting should be avoided, for where large receptacles are employed the soil becomes stagnant, causing diseased foliage. Polypolium and Osmunda fibre, the lecturer said, he has proved highly satisfactory, but much prefers peat when the best is obtainable. When desirable to increase certain varieties the rhizome may be severed between the back pseudo-bulbs, and if the plants are kept on the dry side a break will soon occur, which can be potted up separately. Mr. Wakefield named a list of Odontoglossums grown at Elmfield, and was awarded a Certificate for O. Pescatorei and O. pulchellum majus. For two Orchids, Mr. Curtis was first; Mr. Hunking second. The former had a grand piece of Cypripedium × Leeanum, and the latter Lælio-cattleya callistoglossa, very good. H. W. in *Journal of Horticulture.*

A SELECTION OF USEFUL BOTANICAL ORCHIDS.

AT the present time the selection of Orchids known to some as "botanical curios" are certainly finding favour among numerous cultivators. They are seen at the fortnightly meetings of the R.H.S. more frequently, and trade growers stock the showier kinds in larger quantities than hitherto. The majority are of fairly easy culture, although some as yet defy our efforts, and would soon become extinct in collections except for an occasional importation; but no difficulty should be found in keeping those mentioned below in good health.

One specimen of each would be sufficient, and the first on my list is Peristeria elata, a strong-growing subject with scapes 3ft. or more in height, and bearing waxy-white blossoms, which are fragrant. The shape of the flowers has been likened to a dove, and for this reason it is termed the Dove Orchid, or Holy Ghost Orchid. The potting material should consist of fibrous loam, peat, and partly decayed leaves in equal parts, with a sprinkling of sphagnum moss and coarse sand added. During the growing period it requires plenty of water, and an average temperature of 65deg. F.; but after the completion of the pseudo-bulbs a few degrees lower, and less moisture at the base, is advised; in fact a decided rest is needed.

A plant suitable for hanging from the roof is Pachystoma (Ancistrochilus) Thomsoniana, the bulbs somewhat resembling a Pleione. When the new shoots are about 2in. long, any repotting may be done, afterwards providing it with a position at the warmest part of the Cattleya house. Directly growth has finished a rest is very beneficial, but care must be exercised in giving water to prevent any distress through lack of moisture. The flowers are large, with white sepals and petals, and a dark purple lip.

The Restrepias, and Scuticarias Hadweni and Steelii, are also adapted for suspending about 18in. from the glass; the first-named, of which R. antennifera, maculata, and sanguinea, are among the best, should be placed in the intermediate division; and the Scuticarias among the Cattleyas, but where they can receive plenty of light, which is necessary to produce floriferousness.

Houlletia is a genus allied to Stanhopea, and may be given similar treatment with good results. Two species in general cultivation are Brocklehurstiana and odoratissima, the former having chocolate coloured flowers, and the latter brownish-red, which are also Violet scented. Another quaint group is the Bifrenarias, and B. Harrisoniæ is the finest. These can be successfully grown near the Maxillarias, requiring practically identical culture.

Many of the Pleurothallis are worth including, particularly P. Roezlii, which produces long scapes of purplish flowers; while some of the Poly-

stachys are useful from a decorative standpoint; of these I would mention P. leonensis, a sweet scented variety, and rarely fails to bring forth its annual display of Lily of the Valley-like spikes; then we have P. grandiflora and odorata, all needing the temperature of the warm division while in an active state. The list could easily be prolonged, but enough has been said to show that among the species there are plenty to satisfy everyone who decides to take up this section of the Orchideæ.—T. ANSTISS, in *Journal of Horticulture.*

The revival in these so-called "botanical curios" comes as a welcome development, and is reminiscent of the olden days of Orchid growing. The above list might be extended almost indefinitely, so numerous are the interesting and beautiful species that one seldom sees in ordinary collections, and which present no special difficulties in their culture. If one has only a Cool house at command, room can usually be found for some of the rarer Odontoglossums and Masdevallias, with a few Oncidiums and other natives of the Andes. Of those that succeed under Intermediate house treatment the number is almost legion, and includes various species of Lycaste, Maxillaria, Epidendrum, members of the *Zygopetalum* group, Trichopilia, Colax jugosus, Gongora, Brassia, Acineta, Brassavola, and numerous other interesting things. The possession of a Warm house enables one to introduce various species of Cirrhopetalum and Bulbophyllum, which are not only very quaint in structure, but very attractive when well grown. The remark also applies to some of the rarer Dendrobiums. Then there is the large section comprised under Saccolabium, Aërides, Vanda, Angræcum and allies, many of which are now seldom seen in fine condition, though many of them require very little room, and are very effective when well grown. Reichenbach once remarked that almost any Orchid was effective when well grown, and at all events there are many more highly attractive kinds than even the largest collection can accommodate, so that there is plenty of room for individual taste.

EPIDENDRUM × KEWENSE.—A second seedling of the self-fertilised batch of Epidendrum × kewense is now in flower at Kew, and is much more yellow than the one noted at page 13. The colour may be described as part yellow and part salmon colour, the former predominating, and there is clear dissociation of the two colours. The underlying ground colour is yellow with a suffusion of salmon colour in the lip, the adjacent halves of the lateral sepals, and the base and margin of the other three segments. Other spikes are showing, and the experiment promises to yield some interesting results.—R. A. ROLFE.

CATASETUM MACULATUM ♂ AND ♀.

THE production of female flowers of Catasetum in cultivation is of comparatively rare occurrence, and it is a curious fact that in many of the species this sex is still unknown, hence the interest of the following case. Mr. M. J. Pope, gardener to Mrs. B. B. Tuttle, Naugatuck, Conn., U.S.A., writes:—"Some time ago I mentioned to you that I had a Catasetum producing an inflorescence of female flowers. I send you photographs showing the female flowers exact life size, and one picture showing the whole plant reduced. Also another picture showing the entire plant and bulb, with a raceme of male flowers. I would like you to identify them for me. The male flowers are green, suffused with brown on the petals, and the females are larger, and of a pea green all over. The small photograph shows them life size. The plant came from Central America."

The photographs are good, and the male flowers are unmistakably those of C. maculatum, one of the two original species of the genus, which was described as long ago as 1822 (*Kunth. Syn. Pl. Orb. nov.*, i. p. 330), from a plant collected by Humboldt and Bonpland at Turbaco, in Colombia. The female flowers have a larger, more globose lip, and the sepals and petals are much shorter, broader and more fleshy, while the column is very short, stout, and without antennæ. The female inflorescence shows five flowers and the male eight. Female flowers appeared at Kewin 1893 (*O.R.*, i. pp. 257, 296), and shortly afterwards at the Royal Botanic Gardens, Glasnevin. It may be added that several female inflorescences of Catasetum have been collected which cannot yet be identified, because of the general similarity between them, and the ignorance of what the corresponding male flowers are like, and it is to be hoped that growers will help to clear up this obscure point in the history of the genus. It may be a long time before the female of every species is known, but we hope that the precedent set by Mr. Pope will not be lost sight of.

The other species described at the same time as C. maculatum was C. macrocarpum, Rich. MSS. (the description not having been published by Richard). The specific name was given in allusion to its very large fruits. It was shortly afterwards figured by Kunth (*Humb. et Bonpl. Nov. Gen. et Sp.*, vii. p. 158, t. 631), and it is interesting to note that one pseudobulb bears an inflorescence with an enormous capsule, the other a two-flowered inflorescence of male flowers. Nothing was then known of the sexuality of the flowers in this genus.

The cause of the erratic appearance of the female flowers is not certainly known, but it is generally believed they are chiefly produced when the plants are very strong.

R. A. ROLFE.

CYMBIDIUM GRANDIFLORUM.

THIS fine species has the reputation of sometimes not opening its flowers properly, but whether the peculiarity is constitutional or due to some cultural defect was not quite clear, as was remarked at page 326 of our last volume with respect to the plant at Westonbirt. Mr. Bound attributes the defect to want of light in winter, when the species invariably develops its spikes, and consequently has always chosen as light a place for it as possible in the Cool house, with the result that he has never been troubled with the flowers failing to open (see *O.R.*, xii. p. 55; xv. pp. 46, 332). The Glasnevin plant also opens its flowers normally (*O.R.*, xii. p. 95), but the same cannot be said of the Kew plant, which is a subdivision of it. Some time ago a fine spike appeared, but the buds turned yellow just before expansion, which happened again this year, but curiously enough the apical flower escaped, and at length expanded perfectly. Possibly a spell of dull and foggy weather had something to do with the failure, but it is clear that the plant should be placed in as light a position as possible during the winter when the spike is developing. None of the other species show the same defect.

LYCASTE SKINNERI FROM BRIDGE HALL, BURY.

A DOZEN fine forms of this beautiful Orchid are sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers, to show the wide range of variation, and the effect they are capable of producing when well grown. The species is a great favourite with Mr. Wrigley, and is extensively used as cut flowers for room and table decoration. The flowers sent are splendidly developed, and are excellent examples of good culture, in which respect we may recall the beautiful specimen of L. S. alba which was figured at page 113 of our last volume. A flower of this beautiful albino is enclosed. The others show various shades of blush and pink in the sepals, with the petals ranging from light rose to purple, and the lip from white to crimson. One form, with rich purple petals, bears a twin-flowered scape, and another, with rather short, broad segments, is also very richly coloured. A flower of the hairy-lipped L. lasioglossa is also enclosed, with another which we believe is the natural hybrid between them, namely, L. × Luciani. They form a very interesting and beautiful series.

It is interesting to note that a plant at Kew which last year produced four twin-floured scapes is again behaving in the same way, which suggests that the peculiarity may become fixed. It is scarcely an improvement, however, for the flowers are so close together that they do not expand to their full extent.

PAPHIOPEDILUM INSIGNE VAR. LAGERÆ.

A FLOWER and photograph of a very distinct and striking variety of Paphiopedilum insigne have been sent by Messrs. Lager & Hurrell, Summit, New Jersey, U.S.A., and the photograph is here reproduced. Messrs. Lager & Hurrell write: "The variety is, as far as we know, unique, an entirely new departure in colour from anything hitherto seen in C. insigne. If the flower arrives in good condition it will speak for itself, but in case it is damaged we append a description and also enclose a photograph. The entire centre of the dorsal sepal is of a reddish dark brown chocolate colour,

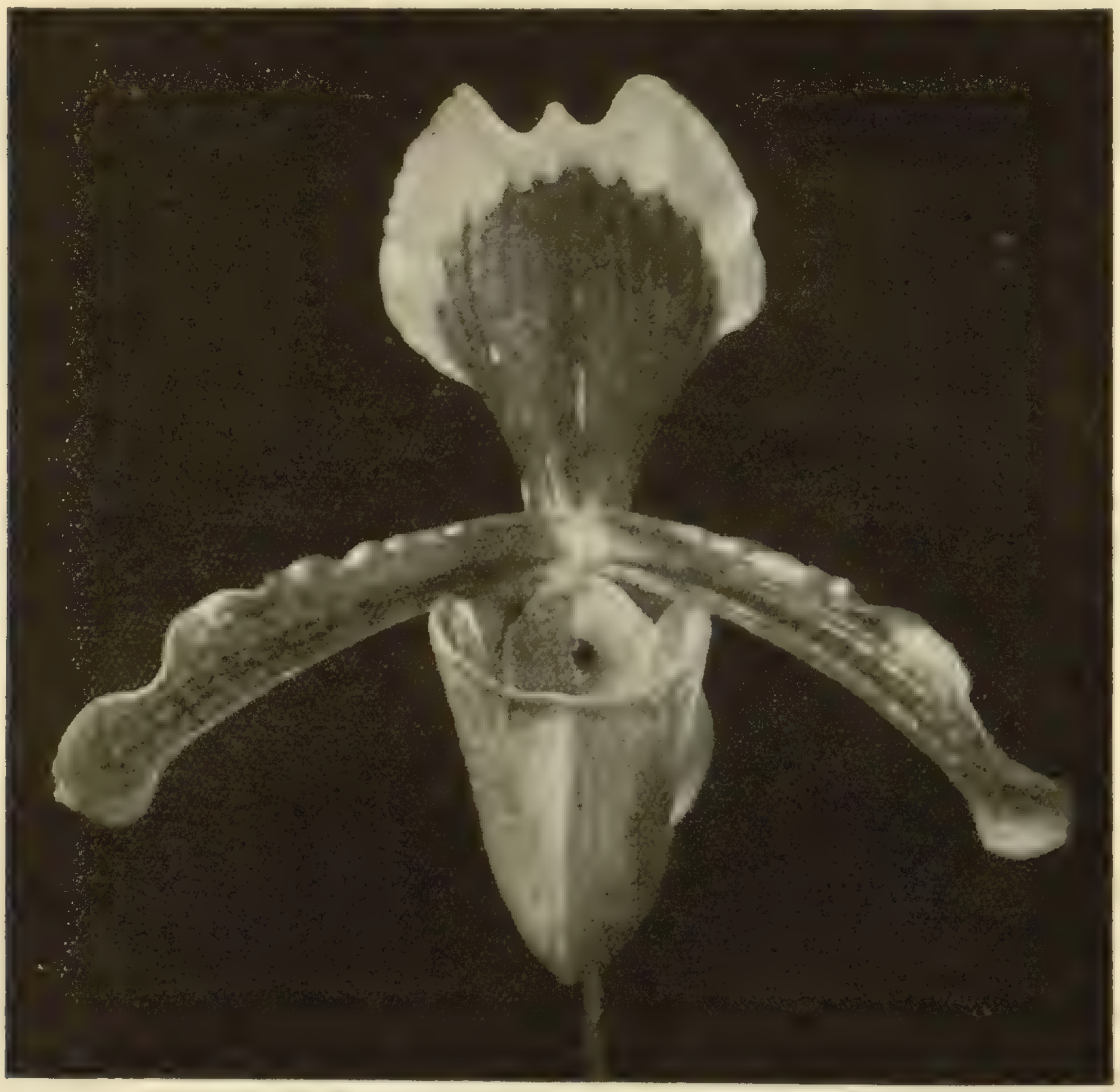

Fig. 3. PAPHIOPEDILUM INSIGNE LAGERÆ.

slightly suffused towards the edges with greenish yellow, and with four or five rose-purple marks at the extreme upper part of the blotch, the whole being encircled with a pure white band. The petals are yellowish green, heavily barred and veined with reddish brown, and the tips yellowish green. The plant has flowered with us for the first time this year, out of a lot of plants we imported from Burma four years ago." It seems most allied to the variety Bohnhofianum (*Gard. Chron.*, 1890, ii. p. 655), whose history has already been given in our pages (ii. pp. 40, 98). In that the base of the dorsal sepal is uniformly suffused with brown.

CATTLEYA INTERMEDIA MONSTROSA.

A very curious Cattleya, which flowered in the collection of M. A. Vanden Herde, was figured in a recent issue of the *Revue de L'Horticulture Belge* (1908, p. 308), under the name of C. Loddigesii, and the figure, by the Editor's

Fig. 4. CATTLEYA INTERMEDIA MONSTROSA.

courtesy, we are able to reproduce. We believe, however, that it represents an abnormal condition of Cattleya intermedia, with which it entirely agrees in the shape of the segments, while those of Cattleya Loddigesii are quite

different. M. Vanden Herde, in commenting on this curious flower, remarks that the anomaly is very interesting and ornamental. There are three lips and eleven other segments, four of which appear to take the form of lateral sepals and are partly hidden behind the three lips, while four others, from their slightly undulate character, are probably true petals: It appears to be a case of three flowers fused in one, and although M. Herde suggests that if that were the case there ought to be fifteen segments, it must be remembered that fusion is often accompanied by a certain amount of suppression, there being no room for the development of the segments on the sides where the flowers are united. A photograph of the anomaly was exhibited at the last Ghent Quinquennial Show. M. Herde remarks that the flower has been fertilised, and has produced a large and perfect fruit, and he is curious to know what will result. Time alone will tell, but we should hardly expect the peculiarity to be reproduced in the seedlings. It would be interesting to know if the monstrosity is repeated in the original plant. The other anomalous variety of C. intermedia, C. i. Aquinii (*O.R.* viii. p. 73, fig. 9), in which the petals have become lip-like, is known to be constant.

CALENDAR OF OPERATIONS FOR FEBRUARY.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

ODONTOGLOSSUMS.—Many of the species and hybrids will now be pushing up flower spikes, and must be carefully watched, or slugs will soon play havoc amongst them. It is a good plan to keep all plants together which are showing spikes, then they can be easily looked over at night for these marauders. Half an hour's hunting after dark with a lantern is worth half a day in daylight. Air should be given as freely as possible whenever the weather is at all suitable, care being taken to prevent cold draughts at any time. Now that the sun is getting more power the plants must not be allowed to suffer for want of water, or the flowers will come small, and the leaves will go yellow and spoil the look of the plants when they are in flower. A light spraying overhead on fine days will keep the plants clean, and give the leaves a healthy appearance.

Odontoglossum Rossii and Cervantesii will be making a nice show now, and although not so showy as O. crispum and its hybrids, they are very pretty and well worth growing. They take up very little room and are very useful for buttonholes. They do well suspended from the roof of the cool Orchid house. O. grande should be kept fairly dry until it commences to make new growths. It and O. citrosmum like to be grown warmer than most other Odontos, and the cool end of the Cattleya house will suit them exactly. O. citrosmum must be kept dry until its flower spikes are showing,

otherwise it will grow and not flower. It blooms freely after a good dry rest. It should be suspended from the roof, so as to shew the pendulous spikes to the best advantage.

Ornithidium Sophronitis is a brilliant little Orchid when well flowered, and under intermediate treatment it grows to perfection. It is very pretty in spring when covered with its scarlet flowers.

ONCIDIUMS.—Most of the winter flowering varieties will soon commence to grow, and any that want potting should be done as soon as they commence to root from the new bulbs. A mixture of Polypodium fibre, moss and leaves in about equal quantities will make a good compost for them, adding plenty of crushed crocks to keep it open. In potting Oncidiums the base of the young bulbs should be kept well down on the compost, so that the roots can get into it before they get damaged, as they will do when potted high above the pots. Woodlice and slugs have a special taste for Oncidium roots, and in Orchid houses one always gets troubled with these pests. The smaller-growing varieties, such as O. concolor dasytyle and ornithorhynchum, are better suspended from the roof. These are very pretty varieties, although not quite so showy as the larger ones. O. flexuosum is also very pretty, especially when grown on rafts or in baskets, where it has plenty of room to wander about. It will also grow and flower well in a stove fern wall, and make a very pretty show when in flower.

Most of the Oncidiums like Intermediate house treatment, but O. Kramerianum, Papilio, Lanceanum, and Cavendishianum like a stove temperature. The butterfly Orchids are very handsome, and always attract attention. They will throw many flowers from the same spike. O. macranthum and lamelligerum will be pushing up their spikes, and as these are very long they should be trained round stakes, or along the roof, where they will make a very fine show when in flower. The spikes are better pinched when they have reached a reasonable length, then they will branch out at every eye, and give better flowers than when allowed to develop the full length of the spike. Slugs are very troublesome with the flowers and spikes, and a piece of cotton wool wrapped round the stem will prevent them from injuring the young tips, but the wool must be kept dry, or replaced whenever it becomes wet, or it will be useless in preventing the slugs from crossing over it. Spraying occasionally with insecticide will also help to keep them down and also keep thrip in check.

PHAIUS will be commencing to grow, and should be potted or top-dressed as soon as they push up their young growths. This is a beautiful class of Orchid, especially now that there is a good selection of hybrids. If given warm treatment they are not much trouble to grow. A compost of good fibrous loam and peat, with a little cow manure added, and plenty of

crocks and charcoal to kept it porous, will suit them. In potting, keep the young growths just below the rim of the pot, so that a plentiful supply of water can be given as soon as they become established. Care should be taken not to break the roots more than necessary. Work the compost carefully in between the roots, and top up with nice lumpy pieces, and add plenty of crocks and charcoal as the potting proceeds, so as to have an open compost, that water will pass through quickly when applied, as Phaiuses object very much to stagnant compost, or a close atmosphere. They like plenty of heat, but not a close atmosphere, and a little air should be given every day, using either the top or bottom ventilators, according to the outside conditions. Do not use both top and bottom ventilators at the same time or it will cause a nasty draught. The leaves must be sponged occasionally to keep them free from scale, but it must be carefully done, as they are very brittle, and easily crack and bruise. A nice warm corner at about 70°, where air can be given, will suit them well to start growing in, and after they get established the temperature can be lowered 5°. During their growing season they will require an ample supply of water. If spot makes its appearance in the leaves, more air will soon check it. Plenty of air should be given during the summer months, so long as a draught is not caused, and the supply is put on gradually, so that they do not get chilled.

PLEIONES that have finished flowering and are making new growths will want potting or top-dressing. They do better when potted annually, before they commence to make many roots, and a mixture similar to that advised for Phaius suits them. They are quite at home when suspended from the roof of the Cattleya house or warm end of the Intermediate house. They should be kept well syringed when they are growing, as they are rather subject to red spider.

CATTLEYAS AND LÆLIAS, during the winter months, when the house has to be kept a little dry, are liable to become infested with scale, and should be carefully gone over and sponged before the young growths begin to push up. A few will generally be found round the base of the growth, and no amount of spraying or fumigating will kill them, as they are under the skin, which should be carefully removed, and then with a brush remove the scale or it will get on the young growths as soon as they begin to push, and cripple them before the growth gets hard enough to withstand the attack. If the young growths get yellow no amount of subsequent care will make the leaves and bulbs green again. When going through them for re-staging, any sickly plants should be placed by themselves, or better still put into a stove temperature, where there is plenty of moisture in the atmosphere. If the compost has gone sour on top they should be top-dressed, care being taken not to break the roots, as every root is valuable

to a sickly plant. Others which are in bad condition should be shaken out and repotted, washing all the old material off the roots and giving them a fresh start. Pot into as small pots as possible without crushing the roots, and very little water will be required until they start again. Syringe daily overhead, and several times daily between the pots, to keep the bulbs from shrivelling more than can be helped. Osmunda fibre chopped up fine with a little moss, so that it can be easily worked in between the roots, will make a good compost for them. As soon as the pot gets full of roots it can be dropped into another pot a size or two larger. Do not break the compost away, but smash the old pot, and drop it into a larger size without disturbing it.

Any other plants that are commencing to root should be potted, if necessary, before the roots get too long, as they are so easily broken. I find this the only method of keeping Cattleyas in a healthy condition, for when once the roots get long they cannot be potted without breaking them, and where many plants are grown there are always a few getting out of season with their growths, and if left on till the time for the bulk to be potted they will be past potting or top-dressing. It is no use doing them when the roots are inactive; they must be growing in order to get any strength from the new materials. When staged by themselves they can be given a little extra attention, and will soon get re-established.

SHADING.—Blinds should be put on the houses where they have been removed for the winter, as they will be needed on a few hours for the softer-leaved Orchids by the end of the month. On bright days it is better to start too early than too late, as after the dull winter months the leaves soon get scorched. Cypripediums, Phalænopsis and Odontoglossums will probably need a little shade by the middle of February, but Cattleyas, Lælias and Dendrobes will easily stand without shade until the end of the month. Where blinds are not used a sprinkling of flour and water will make a good shading, and one that is not easily washed off during heavy rains. Where lath roller blinds are used, and have been left on for winter use, they should be examined, and any broken links replaced before they are wanted for shading purposes. They are easily repaired, and very few links get broken as a rule, still it is better to be on the safe side.

VENTILATION.—Now that the days are getting brighter a little extra ventilation should be given, always taking care not to cause a draught. It is better to use either top or bottom ventilators only at one time, as if both are used together it soon chills the house. When the blinds are dropped the ventilation should be considerably decreased until they are rolled up again, as a sudden check causes more harm than is generally suspected at the time.

DAMPING should also be more frequently done, in order to keep a nice growing atmosphere in the houses.

WATERING should be gradually increased as the plants commence to grow stronger.

TEMPERATURES will rise considerably with sun heat, but keep the fires well in hand, and do not let the houses drop below the lowest temperatures given last month. It is no use attempting to work to a degree in the day time, as one cannot control the sun, and some days it is not bright enough to shade, but still the sun has power to run the temperatures up a good deal. It will do no harm to let them go 10° higher so long as a close atmosphere is not created.

BULBOPHYLLUM LEMNISCATOIDES.

THE reappearance of this remarkable little species in the collection of Sir Jeremiah Colman, Bart., Gatton Park, Reigate, is interesting. It originally appeared in the collection of Mynheer Van Lansberge, Chateau des Rees, Brummen Gueldre, Holland, over eighteen years ago, when it was described (Rolfe in *Gard. Chron.*, 1890, i. p. 672). It had been imported from Java. Practically nothing further was heard about it until last autumn, when it flowered at Gatton Park (*O.R.*, xvi. p. 292). This latter plant had been sent by Mr. Connell with other Javan Orchids. It is the only ally of the remarkable Burmese B. lemniscatum which has yet appeared, and indeed is very similar in the inflorescence and in having three remarkable pendulous appendages, one from the back of each sepal, though in other details the two are very distinct. B. lemniscatum has strongly tuberculed, three-leaved pseudobulbs, and the sepaline appendages are clavate, and bear ten longitudinal crenate keels, while the other has smooth, one-leaved pseudobulbs, and the appendages are less clavate and cylindrical in outline. B. lemniscatum was discovered by the Rev. C. Parish on an old shingle roof at Zwakabin, in Moulmein, in November, 1868, and two years later plants were sent to Kew, which flowered there in July, 1872, when the species was described and figured (*Bot. Mag.*, t. 5961). Sir Joseph Hooker then remarked: "A more singular little gem of an Orchid cannot well be imagined. Its curious glossy, tuberculed pseudobulbs, its capillary scape, with the long inflated upper sheath, its pendulous spike of glistening minute flowers, and above all, its slender appendages, that hang over from the back of each sepal, are as curious in structure as beautiful in colouring." The species was cultivated at Kew as late as 1892, but has unfortunately since been lost sight of. In both a good pocket lens is necessary to enable one to appreciate their remarkable character.—R. A. R.

Since the above was written a figure of the species has appeared (*Gard. Chron.*, 1909, i. p. 68, fig. 38), with a short description, but its early history is omitted.

R.H.S. ORCHID COMMITTEE.

THE following constitute the Orchid Committee of the Royal Horticultural Society for the current year. New members are indicated thus* :—

FOWLER, J. GURNEY, J.P., Glebe Lands, South Woodford, *Chairman.*

VEITCH, HARRY J., V.M.H., F.L.S., 34, Redcliffe Gardens, S.W., *Vice-Chairman.*

COOKSON, NORMAN C., Oakwood, Wylam-on-Tyne, *Vice-Chairman.*

COLMAN, SIR JEREMIAH, Bart., V.M.H., Gatton Park, Reigate, Surrey, *Vice-Chairman.*

O'BRIEN, JAMES, V.M.H., Marian, Harrow-on-the-Hill, *Hon. Sec.*

*ALCOCK, J. FORSTER, Northchurch, Berkhampstead.

ALEXANDER, H. G., Westonbirt Gardens, Tetbury.

ASHWORTH, ELIJAH, Harefield Hall, Wilmslow, Cheshire.

BALLANTINE, H., V.M.H., The Dell Gardens, Englefield Green.

BOLTON, W., Wilderspool, Warrington.

BOUND, W. P., 112, Station Road, Redhill.

BOXALL, W., V.M.H., 186, Brook Road, Upper Clapton, N.E.

BROOMAN-WHITE, R., Arddarroch, Garelochhead, N.B.

*BUTLER, W. WATERS, Southfield, Norfolk Road, Edgbaston.

CHAPMAN, H. J., Oakwood Gardens, Wylam-on-Tyne.

CHARLESWORTH, J., Lyoth House, Haywards Heath.

COBB, W., Normanhurst, Rusper, Horsham.

CRAWSHAY, DE BARRI, Rosefield, Sevenoaks.

CURTIS, C. H., 2, Adelaide Road, Brentford, Middlesex.

CYPHER, J., Queen's Road, Cheltenham.

DYE, A., Tring Park Gardens, Tring.

HANBURY, F. J., F.L.S., Brockhurst, East Grinstead.

*HATCHER, W. H., c/o J. W. Moore, Rawden, Leeds.

LITTLE, H., Baronshalt, The Barons, E. Twickenham.

LOW, STUART H., Bush Hill Park, Enfield.

LUCAS, C. J., Warnham Court, Horsham.

MCBEAN, A. A., Cooksbridge, Sussex.

MOORE, F. W., A.L.S., V.M.H., Botanic Gardens, Glasnevin, Dublin.

MOORE, G. F., Chardwar, Bourton-on-the-Water, Glos.

OGILVIE, F. MENTEITH, 72, Woodstock Road, Oxford.

POTTER J. WILSON, 219, Ashley Gardens, S.W.

SANDER, F., V.M.H., St. Albans.

THOMPSON, W., Walton Grange, Stone, Staffs.

THWAITES, R. G., 23, Christchurch Road, Streatham, S.W.

TRACY, H. A., Amyand Park Road, Twickenham.

WHITE, W. H., Burford Lodge Gardens, Dorking.

WILSON, GURNEY, Glenthorne, Haywards Heath.

ODONTIODA CHELSEIENSIS.

THE annexed figure represents an interesting and beautiful hybrid, raised by Messrs. Wm. Bull & Sons, Chelsea, from Cochlioda vulcanica and Odontoglossum crispum, which was shown by them at a meeting of the Manchester Orchid Society held on January 7th last, when it received an Award of Merit. It is reproduced from a photograph kindly sent by Messrs. Bull, in which the single flower is represented natural size. The colour is described as deep rosy carmine, richly shaded with violet purple, and the shape may be described as fairly intermediate between its very distinct

Fig. 5. ODONTIODA CHELSEIENSIS.

parents. We have not seen a living flower, so cannot describe it more minutely, but the photograph speaks for itselt, and it shows a very distinct blotch on the lip, in front of the crest, also some markings on the sepals and petals, these evidently being derived from the Odontoglossum parent. It is certainly a very beautiful acquisition, and Messrs. Bull are to be congratulated on their success. It would be interesting to re-cross it with a good form of Odontoglossum crispum, so as to increase the size of the flower.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting of the year was held at the Royal Horticultural Hall, Vincent Square, Westminster, on January 12th last, and produced a good display of Orchids, eighteen exhibitors being represented, and the awards consisted of three medals, one First-class Certificate, three Awards of Merit, and one Cultural Commendation.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting group, to which a Silver Flora Medal was given. It contained a good example of Cymbidium grandiflorum, C. × Lady Colman, a selection of Lælia anceps varieties, including Hilliana and Gatton Park var., the latter having a lilac tinge on the front lobe of the lip, the handsome Spathoglottis × Colmanii, a well-bloomed Epidendrum polybulbon, Warscewiczella velata, Bulbophyllum Careyanum, the rare Eria tricolor, Phaiocalanthe Colmanii, Cœlogyne × Colmanii, &c.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury, (gr. Mr. Alexander), received an Award of Merit for a good example of Vanda Watsoni, the graceful species figured as the frontispiece to our last volume, and a similar award for Cattleya × Maggie Raphael, Westonbirt var., a very beautiful form, having light rose-coloured sepals and petals, the latter showing a silvery white veining, and the lip deep ruby crimson, with some deep yellow veining in the throat. He also sent Brassocattleya Leemanniæ var. Rajah, a large and very prettily coloured variety, with Cypripedium × Beryl and C. × Bellerophon, two very fine hybrids.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), received an Award of Merit for Odontoglossum × ardentissimum Norman Cookson, a beautiful variety, having broad white sepals and petals, with the lower two-thirds of each heavily blotched with violet-purple.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), received a Cultural Commendation for a fine specimen plant of Masdevallia ignea, bearing over seventy flowers.

H. J. Bromilow, Esq., Rann Lea, Rainhill, Lancs. (gr. Mr. Morgan), sent a fine example of Cypripedium × Æson giganteum, and a pretty albino form of C. Charlesworthii called Bromilowiæ, having a pale green flower, with a white dorsal sepal. It differs in shape from the one previously shown, which is now known as C. C. Bromilowianum.

Walter Cobb, Esq., Rusper (gr. Mr. Salter), showed the pretty Cypripedium Helen II. var. Armstrongiæ (insigne Sanderæ × bellatulum album).

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), showed Maxillaria callichroma and a richly coloured Odontoglossum

from O. × Wilckeanum × Vuylstekei, having a white ground colour and heavy dark brown markings.

J. H. Craven, Esq., The Beeches, Keighley, York, (gr. Mr. Corney), sent the handsome Cypripedium × Troilus Cravenianum (× nitens magnificum × insigne Harefield Hall var.), a large and handsome form.

H. Little, Esq., Baronshalt, Twickenham (gr. Mr. Howard), sent Cypripedium insigne called Little's var., a fine form with large blotches.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed Cypripedium × Alcibiades, Chardwar var., and C. × Harlequin, a curiously striped form.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent a fine example of Cypripedium × fulshawense, and Maxillaria Hubschii, with very pretty undulate sepals and petals.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent four pretty forms of Cattleya × Maggie Raphael, having white sepals and petals and a richly coloured lip, and C. × Leda, Thwaites' var. (Dowiana aurea × Percivaliana), with rosy lilac sepals and petals, and a rich purple lip, with some yellow veining on the sides of the throat.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Sophrocattleya Mrs. Francis Wellesley (Sophronitis grandiflora × Cattleya labiata), bearing a very brilliant carmine-rose flower, with some red veining on the orange-coloured disc of the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a brilliant group, to which a Silver Flora Medal was awarded. It included a beautiful series of white forms of Lælia anceps, the handsome Sophrocattleya Doris, Odontoglossum × crispo-Harryanum, O. × Gladys, the beautiful albino O. × armainvillierense xanthotes, the brilliant Odontioda Bohnhofiæ, and a series of other hybrids, the pretty Saccolabium bellinum, Cymbidium × Holfordianum, Brassocattleya Queen Alexandra, the handsome Cypripedium Beeckmanii, C. × Hitchinsiæ magnificum, C. × Baron Schröder, and other Cypripediums, some good Læliocattleya Andromeda, a series of the beautiful Cattleya × Octave Doin, and various other hybrid Cattleyas. A First-class Certificate was given to C. Percivaliana Charlesworth's var., a beautiful white flower, with a rich reddish purple blotch on the lip in front of the yellow disc.

Messrs. James Veitch & Sons, Chelsea, included a few good Lycastes, Odontoglossums and Cypripediums, in a brilliant group of stove and greenhouse plants, which gained a Gold Medal.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, received a Silver Banksian Medal for a pretty group of Odontoglossums and Cypripediums, good forms of the latter being C. × triumphans, C. × Helen II., C. × Minos Youngii, C. × Ville de Paris, C. × insigne var. E. J. Seymour,

Bulbophyllum mandibulare, the richly coloured Lycaste × Balliæ superba, &c.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a pretty little group of Cypripediums, including C. × aureum Surprise, C. × Maudiæ, C. × Helen II., var. Armstrongiæ, the charming C. × Venus, Orchidhurst var., and two good seedlings of C. × insigne.

Mr. A. W. Jensen, Lindfield, sent a small group of Odontoglossum crispum, including a very good blotched form.

Messrs. J. and A. A. McBean, Cooksbridge, sent a small group, several forms of Cattleya Trianæ and Lælia anceps, including a fine L.a. Schrœderæ, a good white form of Odontoglossum crispum, Cypripedium × Thompsoni superbum, C. × aureum excelsum, C. × memoria Jerninghamiæ and other Cypripediums.

M. Mertens, Ghent, sent a small group of seven hybrid Odontoglossums, including good forms of O. × Phœbe and O. × crispo-Harryanum.

At the meeting held on January 26th the exhibits were rather less numerous, but included a number of interesting things, and the awards consisted of four medals, two First-class Certificates, and three Awards of Merit.

J. Foster Alcock, Esq., Exhims, Northchurch, received an Award of Merit for Cypripedium × Euryades, New Hall Hey var. (Leeanum × Boxallii), a fine hybrid, having the dorsal sepal white, tinged with rose and well blotched with dark purple. He also sent Cypripedium × Beryl, a pretty hybrid derived from C. × Mrs. Wm. Mostyn and C. × Beeckmanii.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received an Award of Merit for Cypripedium × Earl of Tankerville (exul × nitens Sander's var.), a very fine hybrid, having the large circular dorsal sepal white, with large purple blotches, and the lip and petals yellow tinged and veined with brown. He also sent C. × Alabaster (Alcibiades × Godseffianum), Sophrocatlælia Danæ, Holford's var., a pretty rose-coloured hybrid with the base of the lip yellow, and a fine bright form of Læliocattleya Golden Oriole.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), received an Award of Merit for Cypripedium × Our Queen (Leeanum × Stevensii), a fine hybrid, most resembling the former, but with a more shining surface, and the dorsal sepal white, densely spotted with purple, and the petals broad, undulate and yellowish green, tinged with purple and the lip green.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a pretty little group, including the bright yellow Spathoglottis × Colmanii aurea, the rare Dendrobium tetragonum, D. Kingianum album, Cœlogyne × Colmanii, Phaiocalanthe Colmanii and others.

J. B. H. Goodden, Esq., The Manor House, Yeovil, sent cut flowers of two good forms of Lycaste Skinneri.

F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent the handsome Cattleya Trianæ var. The Premier, a very finely shaped flower, with broad, light rose-coloured petals, and the lip rich purple, margined with white and the throat deep yellow.

Messrs. Charlesworth & Co., Hayward's Heath, staged a fine group, which received a Silver Flora Medal. It contained a fine example of Brassocattleya Cliftoni, Odontoglossum Uroskinneri superbum, O. × Venilia (cirrhosum × Pescatorei), a pretty white flower spotted with purple, O. × ardentissimum album, Cymbidium × Woodhamsianum, the rare Xylobium leontoglossum, and others. First-class Certificates were given to Læliocattleya Felicia (L.c. Haroldiana × C. Trianæ), a very handsome hybrid, with well-shaped light-rose sepals and petals, and the front of the lip dark purple crimson, and to "Sophro-Lælio-Cattleya" Marathon var. Vesuvius (Sophrolælia Psyche × C. × Empress Frederick), a very fine form, having brilliant crimson sepals and petals, tinged with violet, and the lip ruby crimson with a yellow throat.

Messrs. James Cypher & Son, Cheltenham, received a Silver Banksian Medal for a good group of Cypripediums, including C. × Mrs. G. F. Moore, C. × aureum Lambeauianum, C. × Thompsoni, and various others, with a fine specimen of C. × Mrs. Wm. Mostyn in the centre.

Mr. A. W. Jensen, Lindfield, Haywards Heath, received a Silver Banksian Medal for a good group of Odontoglossum crispum, which included a few good rosy and spotted varieties.

Messrs. Hugh Low & Co., Enfield, received a Silver Banksian Medal for an interesting group, containing the brilliant Læliocattleya Charlesworthii, the rare Bulbophyllum Blepharistes, the coral-red Rodriguezia secunda, some good varieties of Cypripedium × aureum, C. × Sallieri, and various other Cypripediums.

Mr. F. Hanson, Somerleyton Gardens, Lowestoft, sent cut spikes of two hybrid Calanthes, which unfortunately arrived in a damaged condition.

Mr. F. McBean, Plumpton, sent a few good Odontoglossums, including a fine form of O. Hunnewellianum, and some pretty varieties of Cattleya Trianæ.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THERE was a very fine display of flowers at the opening meeting of the year, held on January 7th, in the Coal Exchange, Manchester. The following members of the Committee were present: Messrs. E. Ashworth (Chairman), Smith, Thorp, Ward, Cowan, Shill, Warburton, Keeling, Holmes, Ashton, Cypher, Parker, Ball, and Weathers (Secretary).

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a specially fine group of Cypripediums and Lycastes, all of excellent quality and well grown. C. insigne was very strongly represented, in spite of the fog of a week or two ago, and I noted the varieties Mrs. F. W. Moore, Hopkinsonianum, giganteum, Exquisite, Berryanum, Sanderianum, King Edward VII., Queen Elena, &c. C. × aureum was well represented by the varieties virginale, Monarch, Œdippe, Rogersii, and Monica Measures. I noted also the unique C. × Euryades incomparabile, and New Hall Hey var., a good C. × Archimedes, C. × Maudiæ, C. × Charlesianum, &c., also a batch of good Lycastes, the best of which were L. × Imshootiana, L. Skinneri alba, L. S. Glory, L. S. grandiflora, this very fine, L. S. Loveliness, &c. A special Vote of thanks was awarded to the group.

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a very bright and interesting group of Odontoglossums, intermixed with Calanthes. Two hybrid Odontoglossums of unrecorded parentage, viz., O. × Geo. Weatherby and O. × Martin both received Awards of Merit. I noted also O. × Vuylstekei, O. × ardentissimum, O. × Rolfeæ, O. × waltonense, the bright Odontioda × heatonensis, Cypripedium × Sallieri Hyeanum, C. × Charlesianum, C. × aureum virginale, and many others (Silver-gilt Medal).

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), sent a group of Cypripediums, all of first-rate quality. The most interesting plant was C. Charlesworthii Bromilowiæ, which obtained a First-class Certificate. Both plant and flower were rather small, the colour being pure white and pale apple green. It is a rare acquisition and good companion to the unique C. C. Bromilowianum. C. × Æson giganteum also gained a First-class Certificate, and though a fine flower I must admit to a feeling of disappointment on seeing it, probably because it has been over-praised. The four following received Awards of Merit: C. × Juno Rann Lea var., C. × Euryades Heaton var., C. × Ainsworthii, and C. bellatulum var. Marjorie, the dorsal of the latter having a decided rose colour, and the lower parts being normal. I noted also C. × Troilus giganteum, C. villosum auriferum, C. × Earl Tankerville, C. × Gaston Bultel var. King Edward VII. &c. (Silver-gilt Medal).

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), staged a group consisting of many choice plants, very tastefully arranged. Odontoglossum × Lambeauianum var. Triton gained an Award of Merit, and Cymbidium × Holfordianum, though scarcely at its best, a similar award. There were arching sprays of O. × Lawrenceanum, O. × L. var. Milo, O. × Vuylstekei, O. crispum Miss Lucien Linden, O. c. Trissie, &c. I noted the albino Cypripedium × Maudiæ, and by its side, C. × M. var. R. Ashworth (callosum Sanderæ × Lawrenceanum), and this latter was actually

darker and richer in colouring than Mr. Keeling's coloured C. Maudiæ obtained from the two ordinary species. I also noted a good form of Cattleya Trianæ, several plants of Dendrobium × Schneiderianum, and an unnamed species of Pleurothallis. The group deservedly received a Silver Medal.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), sent a fine group, chiefly Cypripediums, relieved with a few fine sprays of Odontoglossums. O. × loochristiense var. Empress Frederick, and C. × Mrs. Walker gained Awards of Merit, and C. × Æson giganteum a First-class Certificate. Included in the group were C. × Gaston Bultel King Edward VII., C. insigne King Edward VII., C. i. Chantini Lindeni, C. × Archimedes Warburton's var., C. × Stepmanii, C. × Nandii, C. × Maudiæ, &c. (Silver Medal).

G. Shorland Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), staged a good group of Cypripediums of high quality. A very fine Cypripedium × nitens Under Fell var. and C. × Leeanum Hercules both gained Awards of Merit. Other things noted were C. × San-Actæus, C. × A. Dimmock, C. × Sir Redvers Buller, very good, C. × Ville de Paris, C. × aureum Ædippe, C. × A. Hyeanum, C. insigne Eric, C. i. Berryanum, C. × Alcibiades superbum, &c. (Silver Medal).

E. Ashworth, Esq., Harefield Hall, Wilmslow (gr. Mr. Holbrook), sent a nice group of Lælias and Cattleyas, mixed with a few good Cypripediums. A nice Cattleya chocœnsis alba gained an Award of Merit, and I noted a good Cattleya Percivaliana with a very fine lip, Lælia anceps alba, L. × Finckeniana, two plants of the new albino Cypripedium × Sanderæ-Kimball, the distinct C. insigne Thompsoni, and several varieties of Cattleya chocoensis and Lælia anceps (Silver Medal).

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a nice mixed group of choice plants, including many varieties of Cypripedium insigne, Lycaste Skinneri, &c. (Silver Medal). Awards of Merit were given to Cypripedium × St. Vincent and Læliocattleya Cranstounii.

Chas. Parker, Esq., Ashton-on-Ribble, Preston, sent a small group of Cypripediums, in which I noted C. insigne Lucianum, C. i. heatonensis, C. × aureum virginale, C. × Parkerianum, &c. (Bronze Medal).

S. Gratrix, Esq., Whalley Range (gr. Mr. Shill), sent the fine Cypripedium × Charlesianum var. Queen Maude (Award of Merit), and the rare C. × Helena.

Ed. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), sent two good hybrid Odontoglossums and O. crispum Daphne, the latter gaining an Award of Merit.

H. Arthur, Esq., Pine Villa, Blackburn, staged a few good Cypripediums &c. The best were Cypripedium insigne Harefield Hall var., C. i. sylhetense,

Cymbidium Tracyanum, and nice spikes of Odontoglossum crispum, O. Pescatorei, &c. (Bronze Medal).

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent a strong plant with two fine flowers of C. × Archimedes var. Cravenianum, which was undoubtedly one of the finest things at the meeting.

Mr. Wm. Bolton, Warrington, sent a fine Odontoglossum × Harryano-crispum, Cypripedium × aureum varieties Etoile, Œdippe, Hyeanum, virginale and Thalia, with C. × Ville de Paris and several fine unnamed hybrids (Silver Medal).

Messrs. J. Cypher & Son, Cheltenham, staged a group of Cypripediums, in which I noted C. insigne Sanderianum, a fine C. × nitens, C. × Leeanum Corona, C. × Nogi, C. × Thompsonianum, C. × Mrs. Wm. Mostyn, C. × Fascinator, C. × Mr. F. Sander, &c. (Silver Medal).

Messrs. Keeling & Sons, Westgate Hill, Bradford, sent a nice mixed group of interesting plants. A well-flowered plant of Angræcum sesquipedale received a First-class Certificate, and Awards of Merit went to Calanthe × Veitchii alba, Cypripedium × Courtauldianum, C. × Bruno, Keeling's var., and C. × Mons. de Curte, Keeling's var. I noted also C. × Hoyleanum magnificum, C. × Leeanum Keeling's var., a fine plant with six flowers, and the distinct Odontoglossum × ardentissimum var. Ingleborough (Silver Medal).

Mr. J. Robson, Altrincham, sent Cypripedium × Leeanum Chardwar var. (Award of Merit), C. × nitens Ball's var., and several fine unnamed hybrids.

Messrs. Hugh Low & Co., Enfield, sent the new hybrid Cattleya × Maggie Raphael var. alba (aurea × Trianæ), having white sepals and petals, and rose coloured lip veined with paler markings (First-class Certificate), also the rare Cypripedium venustum Measuresianum and C. × Juno.

Messrs. W. Bull & Sons, Chelsea, showed Odontioda chelseiensis, of pale claret colour, which received an Award of Merit. [See figure on page 48.]

Messrs. Sander & Son, St. Albans, sent Cypripedium × Lathamianum Sander's var., a fine flower of good proportion (Award of Merit).

Messrs. Owen & Co., Northwich, sent a nice selection of Cypripedium insigne varieties.

At the meeting held on January 21st there were evidences of the falling off of the Cypripedium family, but there was a good show, and over fifty plants were placed before the Committee, which sat as follows: E. Ashworth (Chairman), H. Thorp, Z. A. Ward, J. Cowan, A. Warburton, J. E. Shill, A. J. Keeling, W. Holmes, F. W. Ashton, J. Cypher and P. Weathers (Secretary).

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), sent a very fine collection of Cypripediums, of his usual high standard, which was awarded a Silver-gilt Medal. A very fine C. × Boadicea magnificum gained a First-class Certificate, and C. × nitens var. Cecil an Award of Merit. Included in the group were a very fine C. × Beeckmanii, C. × Dora Crawshaw, C. × Minos Youngii, C. × Geo. Singer, C. × Leeanum Lavertonianum, C. × Venus, Rann Lea var., C. × Clio giganteum, &c.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a very bright group, consisting mostly of well-grown Odontoglossums, intermixed with a few Cypripediums. I noted O. × ardentissimum Lawrencei, O. × a. album, O. × Rolfeæ, a fine specimen plant of O. pulchellum, O. × amabile, O. × Lambeauianum, a fine form and well-flowered plant of O. × Harryano-triumphans, Odontioda heatonensis with two spikes, also Cypripedium × aureum virginale, C. × a. Ward's var., C. × Leonidas superbum, &c. (Silver-gilt Medal).

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a fine group of Cypripediums, which gained a Silver Medal. C. × Marguerite, C. × Euryades var. Tantulus, and C. × E. var. Jacquard received Awards of Merit. I noted also a strong plant of C. × aureum virginale, C. × Ædippe, C. × A. Warburton's var., C. × Clio giganteum, C. × Mrs. Tautz, and Cattleya × Mont Blanc.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), sent a nice group of mixed plants, in which I noted C. × aureum Hyeanum, C. × a. Robsoni, C. × Euryades var. Rossendale, C. × Minos Youngii, a strong plant with six blooms of C. × Leeanum Clinkaberryanum, Dendrobium × splendidissimum, several plants of spotted Odontoglossums, including O. × Solstice, &c. (Silver Medal).

Ed. Rogerson, Esq., Didsbury (gr. Mr. Price), sent Odontoglossum × Lillie Mayall, and Cypripedium × Lillie Mayall (a fine hybrid from C. × Minos Youngii × Euryades New Hall Hey var.), both of which gained Awards of Merit. I noted also a very good form of C. × aureum Surprise and C. × a. laekenense (Vote of Thanks).

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a nice mixed group. Cattleya Trianæ var. Donald, a fine form with broad petals, gained an Award of Merit. There were also several well-flowered Lælia anceps Sanderiana and L. a. Stella, Cypripedium × St. Vincent, a fine flower of the Beeckmanii type, C. × Hoyleanum, C. × Niobe, Lycaste Skinneri, &c. (Silver Medal).

Chas. Parker, Esq., Ashton-on-Ribble, sent a group of Cypripediums, in which I noted C. insigne Sanderianum, C. × claptonense, &c. (Bronze Medal).

H. Arthur, Esq., Blackburn, sent a nice group of Cypripediums, chiefly C. insigne, and cut spikes of Lælia anceps (Bronze Medal).

Norman Galloway, Esq., Great Horton, Bradford (gr. Mr. Beaumont), sent a group of Cypripediums, in which I noted C. insigne Galloway var. and C. × aureum var. Ackeron (Bronze Medal).

J. H. Craven, Esq., the Beeches, Keighley (gr. Mr. Corney), sent Cypripedium × Ville-Actæus (Ville de Paris × Actæus langleyense), a good flower with green dorsal sepal, densely covered with small spots (Award of Merit).

Messrs. Cypher & Son, Cheltenham, staged a good group of Cypripediums, in which I noted C. × Miss Louise Fowler, C. × Charlesianum Cypher's var., C. × George Moore, C. × nitens Perfection, &c., the group being relieved with spikes of Lælia anceps and Cattleya Trianæ (Silver Medal).

Mr. W. Bolton, Wilderspool, sent Cypripedium × Euryades Rossendale, C. × Beeckmanii, C. × Thompsonianum, and several fine unnamed hybrids.

Mr. W. Shackleton, Great Horton, Bradford, sent a group of Cypripediums, in which I noted a fine C. callosum Colossus, C. × Prospero, C. × aureum virginale, C. insigne King Edward, &c. (Bronze Medal).

Messrs. A. J. Keeling & Sons, Bradford, sent a nice group of mixed plants. I noted Epidendrum polybulbon luteo-album, Cypripedium × Fowlerianum, C. × keighleyense, plants of Odontoglossum crispum, a well-flowered O. Pescatorei, &c. (Silver Medal).

Mr. J. Robson, Altrincham, sent Odontoglossum × Her Majesty (Award of Merit), and O. × eximium × var. Wardiæ, a very fine flower with good claret blotching, which gained a First-class Certificate. I noted also Cypripedium insigne Mary-Amelia and Lycaste Skinneri alba.

Messrs. Hugh Low & Co., Enfield, sent Cypripedium villosum auriferum, C. × aureum virginale, and C. × triumphans Jules Hye's var.

H. THORP.

THE HYBRIDIST.

MILTONIODA × LINDENI.—A very interesting and beautiful hybrid has been sent by M. Lucien Linden, of Brussels, but unfortunately there is a doubt about the parentage. M. Linden's grower had the record Oncidium Phalænopsis × Cochlioda sanguinea, but it clearly came from some other cross, and thus may have been a stray seedling. It looks like a hybrid between Cochlioda vulcanica and a Miltonia, probably M. Phalænopsis. Of the former genus there is not a shadow of doubt, for the brilliant deep rose colour tells its own story, and if character goes for anything the species is equally clear, for the resemblance is to C. vulcanica, not to the other species. The other genus is almost equally certain, for the shape and texture both show a great approach to Miltonia, and the distinct side lobes

of the lip closely resemble those of M. Phalænopsis reduced to half the size. There is an unmistakable resemblance to both parents, as was seen the moment the box was opened, and is strengthened by a comparison with flowers of the species mentioned. The flower measures 1¾ inches across its broadest diameter, and the sepals and petals are elliptical-oblong, somewhat acute, spreading, and of the most brilliant deep rose. The lip is distinctly four-lobed, over ¾inch long by not quite as broad, with the apex of the side lobes rounded, and the colour bright rose, becoming almost flesh-coloured round the bright yellow disc, on which is situated an oblong crest, ¼inch long, and slightly bifid at the apex. The column is oblong, ¼inch long, with a pair of small membranous wings. The lip is entirely free from the column, and spreading, in which respect it resembles the Miltonia parent. M. Linden remarks that the habit of the plant is just that of Oncidium ornithorrhynchum, which would indicate the preponderating influence of the Cochlioda parent. The generic name Miltonioda is proposed as the most euphonious way of combining the names of the parent genera, and is analagous with Odontioda. The appearance of this brilliant little hybrid indicates the possibility of a new development.

ODONTIODA GATTONENSIS.—A charming hybrid raised in the collection of Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), from Odontoglossum Kegeljani (polyxanthum) and Cochlioda Nœtzliana, by Mr. Bound. It is most comparable with Odontioda Bradshawiæ, but has a yellower ground colour and firmer texture. The sepals and petals are lemon yellow, with orange-scarlet markings, which occupy the greater part of the surface except at the base and tips. The lip has a large reddish blotch in front of the yellow crest, surrounded by a narrow primrose-tinted band, and a toothed orange-coloured margin, while the side lobes are striped with reddish brown.—*Gard. Chron.*, 1909, i. p. 17.

OBITUARY.

GEORGE FIELD MORRIS.—The death is announced of Mr. G. F. Morris, F.S.I., one of the original founders of the firm of Messrs. Protheroe & Morris, auctioneers, of 67, Cheapside, London, and well known to many of our readers who attend their Orchid sales. He was born on September 2nd, 1831, and at the age of 14 entered his father's nurseries at Leytonstone, to acquire a knowledge of the business. In 1860 he conducted his first auction sale, and about the year 1874 the firm was extended, and opened a City branch at 98, Gracechurch Street, afterwards removing to the present premises at Cheapside. Until his retirement six years ago he pursued an active career as an auctioneer and valuer. He died at his residence, Cambridge Park, Wanstead, early on Saturday, January 2nd, of heart-failure, in his 68th year.

ORCHIDS IN SEASON.

A FLOWER of the magnificent Cattleya Trianæ var. The Premier, which has received both a First-class Certificate and a First Diploma from the R.H.S., is sent from the collection of Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins). It is generally considered to be the finest variety of recent years. It is of fine shape, and the sepals are 3¼ inches broad, very prettily crisped, and of delicate blush pink, while the side lobes of the lip are rather darker, the front lobe rich amethyst, and the very open throat deep yellow, the disc behind being striped with broad purple lines.

DENDROBIUM × AINSWORTHII ROSEUM.—A pretty rosy form of Dendrobium × Ainsworthii has just flowered in the collection of H. Gurney Aggs, Esq., Pippbrook, Dorking, and a flower has been sent by Mr. Gill, who remarks that it was obtained by crossing Dendrobium aureum with D. nobile virginale. It affords another curious case of reversion, for the albinism of the pollen parent is completely lost, and the flower is most comparable with D. × Ainsworthii roseum. It will be interesting to hear if other seedlings behave differently.

Several interesting flowers are sent from the collection of E. F. Clark, Esq., Teignmouth. Lælia Perrinii × Læliocattleya Pallas is a seedling purchased at a sale at Harefield Hall, Wilmslow, in March, 1904, with the parentage given, and has now flowered for the first time. It is most like L. Perrinii and shows little if any trace of the C. Dowiana influence, in fact it bears a considerable resemblance to L. × Pilcheri (L. Perrini × crispa). The flower is small at present, but may be expected to improve as the plant becomes stronger. A seedling from Paphiopedilum × Leeanum × Godseffianum was raised in the collection, the seed having been sown in December, 1903. It is a form of P. × Hiawatha, apparently raised from the reverse cross. It shows its origin fairly well, though there is no trace of the rich colour of P. hirsutissimum in the petals. Other seedlings of it are yet unflowered. A third must be regarded as a form of P. × Brunianum, having been bought from the Winn collection over twelve years ago as a seedling from P. × Leeanum × œnanthum superbum, though Mr. Clark observes that the villosum and Spicerianum influence chiefly predominate. It has flowered on two or three previous occasions. A fourth was purchased at one of Messrs. Protheroe & Morris' sales as an unflowered seedling, and is of doubtful origin, though P. villosum is apparent, and perhaps P. Spicerianum. Mr. Clark has been told that it resembles a form of P. × Lathamianum that was exhibited at Ghent, though he scarcely thinks it can be a form of that hybrid. It is a fine thing, and flowered for the first time two or three years ago. Lastly may be mentioned a very beautiful Cattleya, one from the four-flowered inflorescence

produced by a plant obtained from Messrs. Charlesworth & Co. as C amethystoglossa × C. labiata. The flower is remarkably similar to that of C. × Victoria-Regina, and we should like to know more of its history.

A spray of the very pretty hybrid Odontoglossum × Groganiæ, whose history was given at page 30, is sent from the collection of J. H. Grogan, Esq., Slaney Park, Baltinglass. In habit and colour it most approaches O. Edwardii, but in the broader flatter segments and the shape of the lip the influence of O. Uroskinneri, the mother plant, is very apparent. Mr. Grogan adds: "I think you will agree that the colour is quite beautiful, and that a spike of four to six dozen of these flowers is a very attractive sight."

THE GERMAN ORCHID SOCIETY.

PROFESSOR DR. OTTO N. WITT writes: "It may interest the readers of the *Orchid Review* to know that a complete reorganisation has taken place in the German Society of Orchidists, and its journal *Orchis*. The Society has joined our Horticultural Society, of which it will be in the future a section, and we have established an Orchid Committee similar to that of the Royal Horticultural Society, which will meet at regular intervals to discuss matters Orchidological. The *Orchis* will form part of the *Gartenflora*, the journal of the Horticultural Society, and will cease to publish its large and cumbersome plates. On the other hand we shall try to provide communications of general interest, besides, or instead of, the tedious Latin descriptions of purely botanical Orchids. I have taken upon myself the somewhat difficult task of looking after this. It would be very pleasant if at some future time we could establish friendly relations between English and German Orchidists."

We hope that the new arrangements will prove successful, and we heartily reciprocate the sentiments expressed by Dr. Witt, and should rejoice in any movement that tended to increase the bonds of friendship between two great progressive nations. There is to be an exhibition at Berlin in April next, of which we hope to receive further particulars.

CYPRIPEDIUM CALCEOLUS.

THE Lady's Slipper, Cypripedium Calceolus, is one of our rarest native plants at the present time—a fact not difficult to understand, seeing that it has not been plentiful for many years, and that it has been uprooted by hundreds, so that there are now few places where it is to be found wild, if, indeed, it has not wholly disappeared. Even on the Continent, where it was much more widely distributed, it is becoming scarce, so that its preservation as a garden plant is much to be desired. Its beauty and distinctness among hardy flowers render it worthy of a good place and a full consideration of its wants. Cypripedium Calceolus is a beautiful plant, with all the

characteristics of the Cypripedes in its growth and the form of its flowers. These are of a pure yellow on the exterior, but the interior of the labellum, or lip, is ornamented with some reddish brown dots in lines ; the petals and sepals being of a maroon colour. In height it is from a foot to a foot-and-a-half high, while the leaves are of a dark green. The Lady's Slipper requires so little in the way of special treatment that it might be more largely grown than it is, and many of the failures with it are caused by the plants being badly rooted to begin with, these being frequently dug up from their native haunts in the most careless and perfunctory way, and passed as soon as possible into the hands of the amateur, although this may not be until what roots were left have been shrivelled and dried up.

With strong, well-rooted plants there will be little difficulty, and the following compost will induce them to grow well. As the name would indicate, this Cypripedium is a lover of calcareous matter, and in all cases it should have small pieces of broken limestone about the roots, and mixed with some good yellow loam. A good friend of my acquaintance once went to the trouble to bring a slab of limestone from a quarry several miles away, against which he planted this Cypripedium, the results being satisfactory. A few pieces of old mortar will, however, answer quite well, and if an eastern exposure is given, and a carpet of some low-growing plant above it, this Cypripedium should thrive. The roots should be about 3in. deep. A little sand about these will be helpful. Should all be well the plants should spear through the ground in April, and will, if strong enough, flower towards the end of June. This beautiful plant well repays any little attention it calls for, and when established will be a source of lasting pleasure.—S. A., in *Journal of Horticulture*.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during February, on the 7th and 23rd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The exhibits will be open to inspection from 1 to 6 p.m. The Annual Meeting will be held on the former date at 3 p.m. The next meeting is fixed for March 9th.

The following notes are taken from the Report of the Council for 1908, which have just been issued :—

CONTRIBUTIONS OF PLANTS.—Contributions of Orchids have been presented to the Gardens by Sir Trevor Lawrence, Bart., V.M.H., K.C.V.O., Sir Jeremiah Colman, Bart., V.M.H., Colonel Holford, C.I.E., C.V.O., W. A. Bilney, Esq., J.P., P. Ralli, Esq., F. Wellesley, Esq., J.P., J. S. Moss, Esq., C. A. White, Esq., J. Sparkes, Esq., Messrs. James Veitch,

Messrs. Charlesworth, Messrs. J. W. Moore, Messrs. George Bunyard and Messrs. Sander. It is hoped that these will form the nucleus of a far larger collection in a few years to come.

NEW CERTIFICATE.—Of late years the want has been increasingly felt of some way of recognising skilful scientific work amongst plants. Even if such work does not immediately result in any great horticultural advance, it may either disclose the steps by which existing results have been attained, or it may lay the foundation and prepare the way for future development; and is, in either case, deserving of the Society's recognition. To meet this want the Council have created a New Certificate, to be called "The Certificate of Appreciation."

It is also announced that the name of Sir Jeremiah Colman, Bart., has been added by the Council to the roll of the Victoria Medal of Honour, to fill one of the two vacancies.

The great Annual Shows at the Temple and Holland House will again be held at the usual period.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on February 4th and 18th. The Orchid Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The next meeting will be held on March 5th.

LIST OF ORCHID AWARDS.—The Orchid Committee of the R.H.S., per Mr. J. Gurney Fowler and Mr. J. O'Brien, has prepared a full list of the certificated Orchids of 1908, with particulars of parentage (in the case of hybrids), and the nature and date of award, and who staged the plants. The list is "for private circulation only."

AN AMERICAN ORCHID EXHIBITION.—We learn that a great exhibition of Orchids will be held at the Horticultural Hall, Boston, during May, 1910, under the auspices of the Massachusetts Horticultural Society. A prize of 1,000 dollars is offered for a group of Orchids, with many other prizes and Gold and Silver Medals, and it is hoped that American and foreign Orchidists will be well represented. We hope to have further particulars later.

The following Notes on Orchids appear in recent reports of the Scientific Committee of the R.H.S:—

November 24th, 1908:—

PELORIA IN CATTLEYA LABIATA.—From Mr. Gurney Wilson, F.R.H.S., of Haywards Heath, came a perfect specimen of a peloric Cattleya labiata in which the perianth was perfectly regular, as is not unusual, and in

addition there were three properly developed stamens adnate to the column. Mr. Wilson also showed a dimerous specimen of Cypripedium insigne, which was not only a very perfect specimen of this rather common aberration, but was interesting on account of the fact that this is the second successive year in which the abberation has occurred in this plant.

December 6th, 1908:—

STAMENS OF ORCHIDS VARIABLE IN NUMBER.—Mr. W. Fawcett showed drawings of the Orchid, Epidendrum Ottonis made from plants occurring wild in Jamaica. The flowers always there have three stamens, while in Trinidad five stamens are developed in the same species, and in Venezuela the structure (according to Reichenbach) is normal.

INTERESTING ORCHIDS.—Mr. F. W. Moore, of Glasnevin, sent two very interesting Orchids, Arachnanthe Lowii and Angræcum caudatum. In the former the first three or four flowers of the very long inflorescence are somewhat smaller and of a quite different colour from those of the rest, from which they are separated by a considerable length of stem. No satisfactory suggestion as to the cause of this difference was given. The flowers of Angræcum caudatum are remarkable for the extraordinary length of their spurs—quite 12 in. in one of the flowers, and nearly as much in the others on the same inflorescence.

January 12th, 1909:—

MALFORMED ORCHID.—From Mr. Lynch, V.M.H., of Cambridge Botanic Garden, came a malformed flower of Cypripedium Dominianum with a normal flower for comparison. The flower had the sepals fused and a double lip; it was taken by Mr. Saunders for further examination.

NOMENCLATURE OF MULTIGENERIC ORCHID HYBRIDS.—The Chairman announced that the sub-Committee appointed to consider this question had arrived at the decision that the best solution of the question lay in coining names for each of the combinations of genera made, consisting of a commemorative name and the termination "ara." The full text of their finding will be laid before the Committee at an early date.

DENDROBIUM GOLDSCHMIDTII, Kränzl.—This is a pretty new species, a native of the island of Formosa, of which an inflorescence, leaf and photograph have been sent from the collection of Dr. Hans Goldschmidt, Essen Ruhr, Germany. The flowers are borne in short axillary racemes, of about a dozen each, and are about half an inch long, and deep rose-purple in colour. The plant grows to over a foot high, and is believed to be the only one yet in cultivation. The technical description has not yet appeared.

ORCHID PORTRAITS.

BRASSOCATTLEYA CLIFTONI.—*Gard. Chron.*, 1909, i. pp. 33, 34, fig. 23.

BULBOPHYLLUM LEMNISCATOIDES, Rolfe.—*Gard. Chron.*, 1909, i. p. 68, fig. 38.

CALANTHE × ANGELA.—*Journ. Hort.* , 1909, i. p. 3, with fig.

CATTLEYA PERCIVALIANA, Charlesworth's var.—*Gard. Mag.*, 1909, p. 43, with fig.

CATTLEYA WARSCEWICZI VAR. SANDERIANA.—*Journ. Hort.*, 1909, i. p. 69, with fig.

CHRONDROPETALUM FLETCHERI.—*Gard. Chron.*, 1909, i. pp. 9, 10, fig. 12.

CYCNOCHES MACULATUM.—*Gard. Chron.*, 1909, i. pp. 26, 27, fig 19.

CYCNOCHES PENTADACTYLON.—*Gard. Chron.*, 1909, i. p. 27, fig. 20.

CYCNOCHES WARSCEWICZII.—*Gard. Chron.*, 1909, i. pp. 27, 29, fig. 21.

CYPRIPEDIUM × BIANCA SUPERBUM.—*Journ. Hort.*, 1909, i., p. 25, with fig.

ERIA RHYNCHOSTYLOIDES, O'Brien.—*Bot. Mag.*, t. 8234.

ODONTIODA CHELSEIENSIS.—*Journ. Hort.*, 1909, i. p. 47, with fig. ; *Gard. Mag.*, 1909, p. 70, with fig.

ODONTOGLOSSUM × ARDENTISSIMUM, NORMAN COOKSON.—*Garden*, 1909, i. p. 53, with fig.

ODONTOGLOSSUM MAGALI SANDER.—*Gard. Chron.*, 1909, i. p. 37, fig. 25 ; *Garden*, 1909, i. p. 33, with fig.

ANSWERS TO CORRESPONDENTS.

E.R. The cause of decay in the Læliocattleya plant sent clearly came from the rhizome, and gradually worked upward. You are probably correct in attributing the cause to over-watering, and the fact of the plant being potted two months ago, when quite inactive. It is a canon of Orchid culture, that Orchids should only be potted when new roots begin to push.

F.M.B. We have no record of the hybrid, P. × Atys rubrum × Leeanum, but the flower sent seems correct. As you remark, the Spicerianum influence comes out strongly in the flower, and we suspect that of P. venustum comes out better in the foliage.

W.G. A form of Dendrobium × Ainsworthii, which is noted on another page.

A.C. We agree that the Odontoglossum sent is a yellow form of O. × Andersonianum, var. hebraicum. The Læliocattleya seems to be a good form of L.-c. Clive (L. pumila × C. Dowiana). The Paphiopedilum hybrid shows the influence of P. villosum very clearly, but we cannot make out the other parent.

The *Orchid Stud Book* has been issued, and those who have not filled up and returned the form sent out with our January issue, if requiring the work, are requested to do so as soon as possible.

We should be obliged if any correspondent can give us the present address of Mr. C. J. S. Still, formerly of Walredden Manor, Tavistock, Devon, as we have a parcel for him, which cannot be delivered.

ERRATA.

" Mr. Thorp writes : The parentage of the albino hybrid mentioned on page 27 should have been Cypripedium insigne Sanderæ with C. i. Laura Kimball (not " Kimballianum "), and the spike of Odontoglossum crispum Stanley Rogerson had 43 flowers, not 30 as given at page 26.

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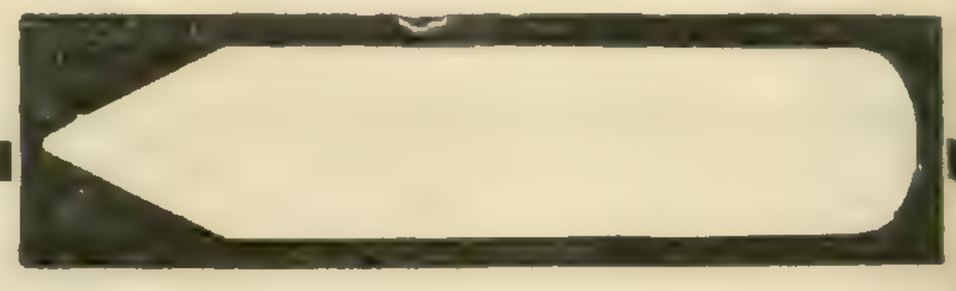

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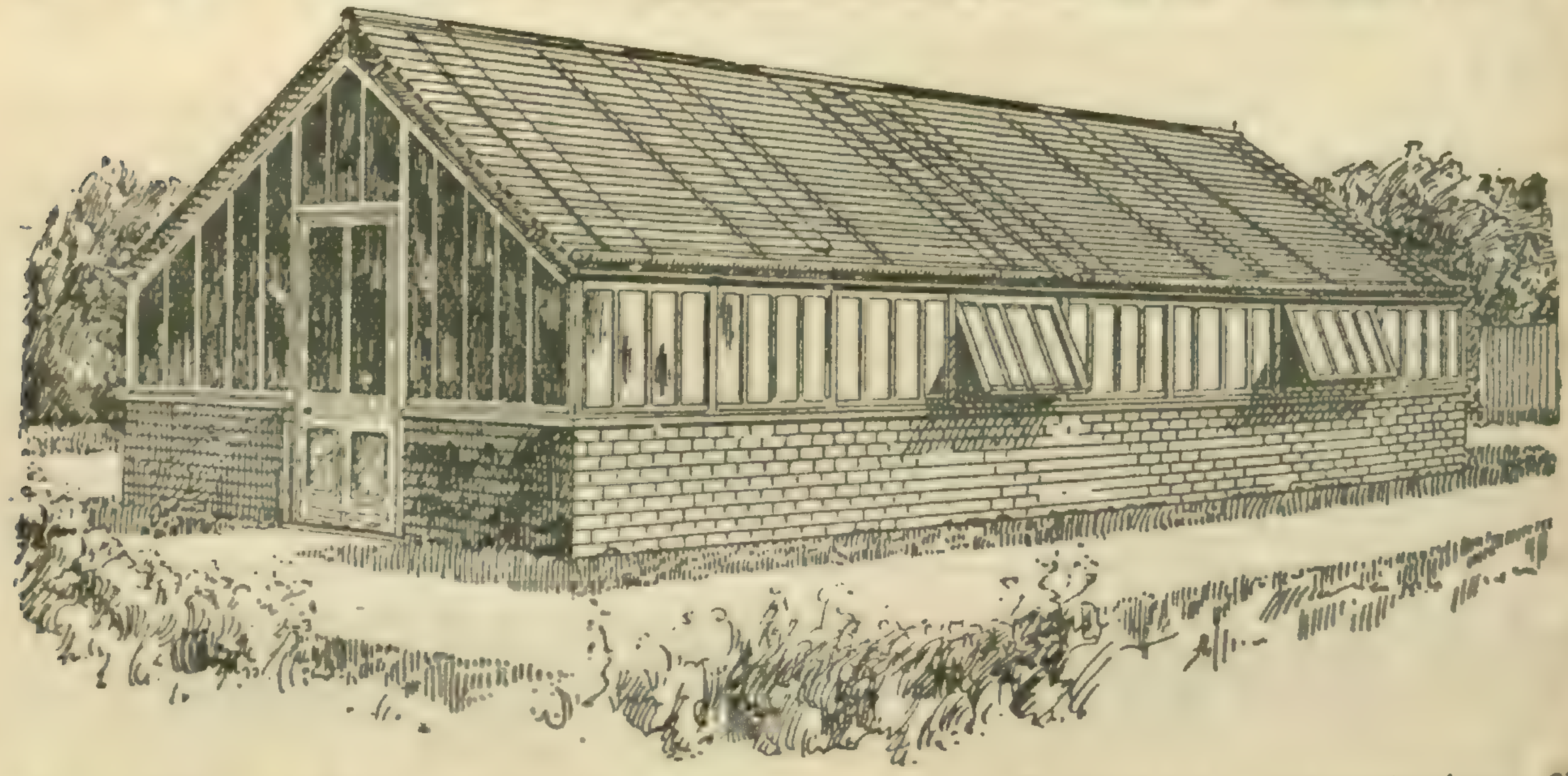

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THE ORCHID REVIEW.

VOL. XVII.] *MARCH*, 1909. [No. 195.

DIES ORCHIDIANI.

THE publication of the *Orchid Stud-Book* is an event in the annals of Orchidology. We have at last something like a guide to the vast literature of the subject, and whether one wants to know the history of any particular hybrid, or whether a certain cross has already flowered, the information can be turned up at once. The bringing together of all the different forms of the same hybrid, whatever the names under which they were recorded, with the list of published figures, is also very useful, because it gives an idea of the relative importance of the different hybrids that have been raised. The synonymy is in some cases extensive, as may be gathered from the statement on page iv. of the Preface that "the well-known hybrid between Cattleya Mossiæ and Lælia purpurata (Læliocattleya × Canhamiana) has been recorded under nineteen different names, while Paphiopedilum × aureum has nearly forty synonyms," and after this the authors may be forgiven for the remark that "generally speaking there has been a careless and even reckless multiplication of synonymy." The introductory chapters relating to the History of Orchid Hybridisation, the Specific Composition of Hybrids, Generic Hybrids, the Literature of Orchid Hybrids, and on Hybridising and raising Orchids from seed, with the numerous illustrations, serve to fill an ordinary volume, and form quite a text-book on the subject.

And there is another important phase of the subject. The authors aim at making it a standard of nomenclature, and if they can succeed in this they will have done much to remedy the confusion which I and others have so often deplored, and which has been partly due to the absence of such a text-book as the one under notice. Now that the principle of a common specific name for the hybrids derived from forms of the same species has been adopted, one fertile source of confusion should vanish, and a common agreement that the said name should conform to the principles of binomial nomenclature would abolish another, while the question of synonymy pure and simple would settle itself if the records could be kept up to date, and

the projected arrangement for continuing the work in the *Orchid Review* should secure that.

The question of Nomenclature seems to be in the air just now, and a Committee of the R.H.S. has been considering it for some time, and has just issued a provisional report, with invitations for comment on the same. I believe the question arose through an appeal of the Orchid Committee to the Scientific Committee for assistance in the naming of some quadrigeneric hybrid which is in existence, but which has not yet flowered, and they wished to be fully prepared for the event. Be that as it may, we read that "The Orchid Committee of the Royal Horticultural Society of Great Britain believes that the time has come when some definite system of nomenclature, which shall be at once simple, euphonious, and distinctive, should be adopted, internationally, if possible." A Sub-Committee has been appointed by the Council, consisting of five members of the Orchid Committee and five of the Scientific Committee, with a Secretary, and to this Sub-Committee six different methods of dealing with multigeneric hybrids have been submitted, which are set forth, as follows:—

"1. That the name consist of parts of the genera which enter into the composition of the hybrid—the system at present in use.

"2. That a consonant be chosen to represent each of the genera used in producing the hybrid, as B for Lælia, C for Cattleya, D for Sophronitis, and that these be followed by the vowel 'a' when the genus is used once, 'e' when it is used twice, and so on, as Dabaca for Sophronitis × Læliocattleya, and Dabeca for Sophrolælia × Læliocattleya.

"3. That one letter, preferably the initial letter, should be chosen to represent each genus used in hybridising: thus L for Lælia, C for Cattleya, S for Sophronitis, and that these letters should be used to form the names of the resulting hybrids. Connecting vowels when necessary should be taken from the initial vowels, and the letter 'y' should be used as a vowel sound between the components denoting the two sets of parents. Thus 'Lysoc' would denote the product of Lælia × Sophrocattleya.

"4. That the name of one of the genera entering into the composition of the hybrid be retained for it, as is the practice in naming natural hybrids in other groups of plants, *e.g.*, in the Gramineae (see Rules of Nomenclature, Vienna Congress, 1905, Art. 32).

"5. That the name be a commemorative one with a conventional ending, such as "ara" or "orch," as Lawrenceara or Lawrenceorch.

"6. That the name be a commemorative one with the syllable "hyb" prefixed to indicate the hybrid origin, as Hyblawrencea.

The Sub-Committee consider that the suggestion No. 5, with the former ending, best fits the case, and are "prepared to recommend to the Council that it be adopted as the method of coining names for multigeneric hybrids, unless some more desirable method can be suggested." They add:—

"The commemorative name chosen should be that of someone eminent as a student or as a grower of Orchids, and the conventional termination 'ara' should be used.

"It is not proposed that this suggestion should interfere with the use of names already in existence, or with the coining of names by combining parts of the names of the parent genera when two genera only are crossed.

"The sub-Committee further think it desirable that the combinations such as Epidendrum × Sophronitis already in existence should be written without a hyphen, as Epiphronitis (see list).

"They further suggest that if the specific name attached to a hybrid were of the Latin form, varietal names would be easier of addition, so that such forms as Læliocattleya 'Phoebe' illustrissima might in the future be avoided."

The Sub-Committee gives reasons for not favouring the other suggestions. Names formed under No. 4 they think "would lack distinctiveness," and those under No. 6, "while distinctive, the constant repetition of the syllable 'hyb' would be likely to lead to confusion, and would be the reverse of euphonious. Those formed under the second suggestion, it is thought, "would not be euphonious or sufficiently distinct," while of No. 3 it is remarked, "The names thus formed would seldom be euphonious, and the method of formation would not always prove sufficiently simple to grasp." But it is against suggestion No. 1 that the most fatal objection is urged. "This method will lead to the formation of such unwieldy names, as Dialaeliocattphronitis and

Brassolaeliocattleysophroschomboepidialeptotes."

I really had to give a separate line to that last word, and I don't mind confessing that I cut it out of the report for fear of getting it wrong. I do hope the printer will be careful with it.

I am glad to find that the Sub-Committee declines to interfere "with the use of names already in existence," because "Lysoc" is scarcely an improvement on Sophrocatlælia, but why, oh why does the Nomenclature Sub-Committee spell it Sophrolæliocattleya?

And why object to Læliocattleya Phœbe? If a name must be found to put in the pillory, why not something like Cattleya × William Harris fulgens or Lælia × Miss Murray E. Ashton? Plants bearing very similar

names have been certificated by the Orchid Committee, but are surely no improvement on the one held up as an example to be avoided. The *Orchid Stud-Book* says, "Hybrids between species should receive names, Latin or classical, consisting of a single word," and surely "Phœbe" is classical enough. Perhaps the Committee will find a better illustration for their final Report.

The system of forming names from parts of the names of the parents has been adopted a good deal of late, but may easily be carried too far. I noted last month the examples, Cypripedium × Sanderæ-Kimball and C. × Ville-Actæus. The former indicates a cross between two yellow varieties of C. insigne, Sanderæ and Laura Kimball, and thus is a variety of C. insigne, and not a hybrid proper. The latter indicates a hybrid between C. × Ville de Paris and C. × Actæus, but the first is said to be a form of C. × Romulus and the second a form of C. × Simonii. The other day I saw a hybrid called C. × Curtmanii, and naturally enough thought of C. Curtisii as one parent. But no, it was C. × M. de Curte, a form of C. × Schlesingerianum. Truly nomenclature is a thorny subject, and full of pitfalls.

ARGUS.

ODONTOGLOSSUM PAUWELSII.

AN interesting and pretty natural hybrid has appeared in the establishment of M. Th. Pauwels, Meirelbeke, Ghent, of which the inflorescence and an old pseudobulb has been sent. M. Pauwels states that it flowered out of an importation of O. Pescatorei received from Ocana last year, and is the only plant presenting any difference so far, though a good many plants are still unflowered. It is much nearer to O. blandum than to O. Pescatorei, having rather narrow acuminate sepals and petals, but the column wings are broad and strongly toothed, not extended into a simple cirrhus, as in O. blandum. The lip, again, has more of the Pescatorei shape, and the characteristic side lobes of the crest are present in a reduced form. O. blandum is also a native of the Ocana district, and the present plant is evidently a hybrid between the two. The flower is rather larger than in O. blandum, and the sepals and petals rather broader and less acuminate, the colour being white, with about eight to twelve roundish dark purple spots. The lip has the almost typical Pescatorei shape and strong constriction at the sides, with a deep yellow, four-lobed crest, approaching that of O. blandum, and small side crests like those of O. Pescatorei reduced. The colour is white, and there are two purple spots on the front lobe, and a few others on the crest. The column wings are broad, strongly toothed, and end in a small cirrhus in front. It possesses the most unmistakable combination of characters of the two species mentioned, and those desiring to possess this pretty little plant should repeat the cross.

R. A. ROLFE.

EPIDENDRUM × KEWENSE: A MENDELIAN EXPERIMENT.

Another of the self-fertilised seedlings of Epidendrum × kewense is now in flower, and shows partial reversion to the original E. evectum parent. The first came true (p. 13), and the second showed partial reversion to E. xanthinum (p. 37). Flowers of the reversionary forms, with such of the original parents as were available, were exhibited at a meeting of the Scientific Committee of the R.H.S. held on February 23rd, the others being E. × kewense, E. evectum, and a secondary hybrid obtained between them. Flowers of E. xanthinum and of the secondary hybrid between it and E. × kewense were not available.

The object of the three experiments has already been explained, and I believe they are the first attempted among Orchids with a view of testing what is termed Mendelian Inheritance. The result was predicted in advance from a Mendelian standpoint, and on the assumption that the colour-bearers represent a Mendelian pair, namely that 25 per cent. of the seedlings should have purple flowers, like E. evectum, 25 per cent. yellow, like E. xanthinum, and the remaining 50 per cent. salmon-colour like E × kewense, *without intermediates*. The full results can only be given when all the seedlings have flowered, but there are already intermediates, in fact there are indications of the same variability and dissociation of parental or specific character that has been observed ever since the first batch of secondary hybrids flowered, and a few suggestions as to the probable cause may now be attempted.

The basis of the Mendelian hypothesis, as I understand it, is the conception that the ultimate character-bearers of an organism are fixed or constant, and are handed on to their offspring pure or unmodified, though entering into new combinations between themselves during the sexual process—hence the term "unit-characters." The question of "Dominance" is of secondary importance. Such a definition at once invites questions.

What is a Unit-Character?

and what is its place in the economy of the organism? Are unit-characters the machinery by which the great work of evolution is carried on? or, conversely, the restraining influence by which stability of specific character is attained? I once suggested to an ardent Mendelian, "What you term unit-characters can only be stages or stopping places on the evolutionary journey," and he replied, "I grant you that," but we got no nearer to a solution of the great mystery. Perhaps if we return to somewhat nearer the original starting point we shall be able to get a better view of the significance of the facts of this complex problem.

In the simplest and most primitive plants the sexual process is unknown. They have not yet arrived at this evolutionary stage. They are unicellular,

and consist of a minute speck of protoplasm, containing a nucleus, chlorophyll (the green colouring matter by which nutrition is carried on), and cell sap, the whole being surrounded by a cell wall. Within the limits of this cell wall the whole life of the plant is carried on. Propagation is effected by division: the nucleus divides, each half secretes a new cell wall, and the cycle is complete. Progressing upwards we find forms in which the cells have begun to cohere in rows, and others in tissues, representing the first stage of co-operation between individual cells, and soon the stage is reached where individual cells, or aggregations of cells, are set apart for a special purpose, entailing differentiation of tissues within the organism. Here we find the first indications of the sexual process. Two cells, externally alike, though obviously differently organised, unite, and their contents coalesce, forming a *zygote*, which afterwards develops into a new individual, like the one from which it was derived. A greater differentiation of the conjugating or sexual cells follows, and the process has since passed through increasing degrees of specialisation, ultimately reaching the degree of complexity seen in the higher plants to-day. The original asexual method of propagation is still retained by some of the simplest plants.

The earliest plants were aquatics (Algæ), but the gradual adoption of a terrestrial habit led to a new stage of development, to meet the new conditions of existence. In the mosses this took the form of the production of what is known as the moss fruit, the production of a mass of minute asexual spores, contained within a capsule. On reaching maturity the spores escape, become disseminated, and on alighting on a damp place germinate directly, without any sexual process, into the moss plant, thus introducing a marked alternation of generations. This moss fruit represents a new or spore-bearing stage, called the sporophyte, the spores being minute, cheaply-produced reproductive cells, which are capable of independent growth without fertilisation, and can rest uninjured while the conditions remain unfavourable. In the ferns the sporophyte stage is carried much further, the sexual stage (or gametophyte) being reduced to a small cellular prothallus, which bears (in special receptacles) the sexual cells, the female after fertilisation developing into the fern plant (or sporophyte). This latter has a large branched vascular system, on which the asexual spores are borne in enormous numbers. These on germinating reproduce the prothalloid stage or gametophyte, thus completing the cycle. In the flowering plants the gametophytic stage is still further reduced, and has no longer an independent existence, being contained within the body of the sporophyte. Fertilisation is effected there, after which further development takes place, a seed is formed and ripened, after which, with certain of its envelopes, it separates from the parent, giving rise to a new and highly complex generation, the spermatophyte.

These changes have been accompanied by the gradual and progressive degradation of the sexual stage, or gametophyte, through countless generations of individuals—alga, moss plant, fern prothallus, pollen and ovules of flowering plants—and the corresponding increase of the asexual stage, or sporophyte—the moss fruit, fern plant, and the enormously developed vascular system of flowering plants. The gametophyte has not developed a vascular system. The latter change began with the adoption of a land habit by plants that were formerly aquatic, and is due to the totally different environmental conditions. This high degree of specialisation has been accompanied by an increasing provision for the protection of the germ cells, and their nutrition within the body of the second generation, by which they are withdrawn from all external influences. But both are phases of the same cycle, and produce each other alternately. The cycle has been continuously and progressively enlarged by the addition of new phases of development, and the modification of existing ones, but all are phases of the same cycle, and are subject to the laws which gave them birth.

The individual cycle is a kind of recapitulation of the phases through which countless generations of the ancestors of an organism have passed in their evolutionary history, back to the most remote stages, and their permanence is due to what is known as the law of heredity, which is a kind of inertia, compelling an organism to follow a certain path or line of least resistance until diverted by the operation of changed conditions. Growth and reproduction are inseparable properties of living protoplasm, but are limited and directed by the conditions mentioned. Phases of development are only manifestations of the forces that are at work—sign-posts along the path of progress, whether we call them Mendelian units or not. Unit characters are supposed to be in some way bound up with what is termed the "germ plasm," but even the germ plasm is a phase of development, whose beginnings can be traced, and neither the one nor the other are independent of the great law of evolution.

Species may be considered to be organisms whose characters have become stable through having followed the same cycle of existence for numerous successive generations, such cycle being different, *in some respect*, from that of any allied species, and the phrase in italics is used intentionally, for it is held that allied species follow the same path during part of their course, deviating therefrom at certain definite points in response to some change in the environment.

Hybrids are, or may be, unstable, because combining different hereditary tendencies, and as each tries to follow its own course, there is a struggle for the ascendancy, which may result in a compromise, or the stronger force may prevail, hence the various phases of dominance so often witnessed. The nature of the compromise may differ greatly according to the degree of

relationship between the parents, and their antecedent history, but whatever the nature of the modification may be in any individual case the question is whether the new character is stable, and this can only be ascertained by raising a new generation from self-fertilised seeds. This is what has been attempted in the experiment now under discussion, and of which the results are now beginning to appear.

The two control experiments described, namely the crossing of the hybrid with each of its parents, seem to me to be important, because I believe that, under the Mendelian expectation, the results, at least qualitatively, should be identical in each case, while on the other explanation outlined they should be different. Several cases are known of the re-crossing of a hybrid with both its parents, and the offspring have been again intermediate.

R. A. ROLFE.

CYPRIPEDIUM BOXALLII AS A ROOM-PLANT.

AN Orchid which has seen some curious vicissitudes has been sent from the collection of W. H. St. Quintin, Esq., Scampston Hall, Rillington, Yorks (gr. Mr. F. Puddle). Mr. St. Quintin writes:—

"My gardener is sending you a plant of Cypripedium Boxallii that has been absolutely without water for over a year. It flowered in January, 1908, and being a poor form, was given to one of the young men to throw away. Being in flower he took it into the bothy as a table plant. On going into the sitting room some weeks later, my gardener found that it had been placed on a shelf near a window and forgotten, and although it had had no water it still looked quite fresh. He therefore asked that it might be allowed to remain there, and there it has remained unwatered, and now it is actually pushing up new growths. Perhaps you will kindly let me have it back again when you have seen it, as after all it has gone through I shall keep it. It shows how even Cypripediums are much more independent of frequent watering than gardeners generally suppose, and even in the dry atmosphere of a dwelling house."

It is a good strong plant, with over a dozen leaves, which have become much shrivelled, but the younger are healthy, and the young growths are as vigorous as needs be. The ball of compost seems quite dry and light, and the plant does not seem to have suffered more than some imported plants. The roots, of course, remain intact, and there is good reason to believe that it will soon be a good plant again, though the older leaves can scarcely recover. It is surprising that the plant has not suffered more under the circumstances. C. Boxallii is an easily grown species, which succeeds under moderately cool conditions, and although the treatment described is far from ideal, a lesson may possibly be learnt from it.

MACODES PETOLA.

THE annexed figure represents the beautiful Macodes Petola, one of the most easily grown and popular species of the Anœctochilus group, and is reproduced from a photograph taken by Mr. C. P. Raffill of a plant grown at Kew. The species is a native of Java, and has been known for a very long period, being described by Blume in 1825 under the name of Neottia Petola (*Blume Bijdr.*, p. 407, fig. 2). It was then thought to be identical with an Amboina plant figured and described by Rumphius as long ago as 1750, under the name of Folium Petolatum (*Herb. Amb.*, vi. p. 93, t. 41, fig. 3), but Blume afterwards

Fig. 6. MACODES PETOLA.

discovered this to be an Anœctochilus, which he named A. Reinwardtii (*Coll. Orch. Archip. Ind.*, p. 48). Lindley had already separated the preceding plant from Neottia, under the name of Macodes Petola (*Gen. & Sp. Orch. Pl.*, p. 497). The habit of the plant is well shown in the photograph, as well as the shape and veining of the leaves. The colour has been described as very lustrous, and resembling light-coloured green velvet, enriched with well-defined netted lines and bands of a pale or yellowish hue, deepening to a golden hue, and covering the whole surface. The racemes grow to about

eight or ten inches high, and the flowers are light reddish brown. There is another species of the genus in cultivation, namely M. javanica, Hook. f. (*Bot. Mag.*, t. 7037), which has silvery veins and deep red flowers. It grows well under the usual Anœctochilus treatment.

THE ORCHID STUD-BOOK.

I HAVE just received the *Orchid Stud-Book*, and beg to congratulate the authors on the most interesting work achieved on behalf of Orchid lovers and hybrid raisers. Although unfortunately compelled to abandon my hobby, my glass houses having been surrounded with high buildings which transformed my garden into a pit, and deprived my plants of air and sunshine, I nevertheless retain the keenest interest in my old favourites. May I point out the omission from the "Literature of Orchid Hybrids" of a paper, of but small importance, which appeared twelve years ago in the *Semaine Horticole* (i. pp. 48, 58), under my name, and with the title "A propos de l'hybridisation des Orchidées." It was written without any scientific pretension, but rather from a practical and humouristic point of view, and has proved since to be quite prophetic with regard to the probable influence of Orchid-hybridising on the future of Orchid culture and trade. Might anyone have believed that the time, which I anticipated as a mere joke, should arrive so quickly, when Orchid seedlings should be sold by hundreds from a single batch, with an additional discount for thousands! "Orchids for the million" is no more a vain fancy. It has been the work of hybridisers to realise it, perhaps to the prejudice of importers, certainly to the great advantage of all those who sincerely admire the beauties of nature. The *Orchid Stud-Book* gives a complete record of their work, and they may be thankful to the authors for its production.

J. RAGOT.

Villenoy, France.

A casual glance through the work satisfied me as to its value, but a closer reading disclosed the stupendous character of the work involved in the compilation of such a book. The numerous notes of reference, the searching of records to ascertain the "rock bottom" name of hybrids, and the classification of synonyms, all speak eloquently of the labour and pains taken, and can only be fully appreciated by the Orchid expert. The thanks of all Orchid lovers are due to you and your collaborator, and all Orchid growers *must* have the book, or they will be hopelessly out of date, though with its limited circulation I am afraid the labour can never be fully repaid. I am eagerly looking forward to the next instalment.

H. THORP.

Boothroyden.

CALENDAR OF OPERATIONS FOR MARCH.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

SHADING.—All the softer-growing sections should be well shaded from the direct rays of the sun, for carelessness at the beginning of the season will cause a lot of unsightly scalds. Where blinds are not used the houses can be shaded with flour and water, either brushed on or put on with the syringe. If green shading is required green colour, as used for paint, can be added. I much prefer flour to lime, as it is so much easier got off at the end of the season, and yet does not wash off with rain. It also has the advantage of being transparent in damp weather. Where blinds are used they can be left up longer in the morning, and drawn up earlier in the afternoon, if the glass is stippled over lightly. If canvas blinds are used it will be better to shade several panes just where they join, as even if enough is allowed for overlapping in fixing they generally shrink in the centre, where they meet, and often leave a gap, and thus damage is soon done to tender foliage plants.

Plants that have been placed up near the glass for the winter months will be better lowered a little, and where they have been stood on pots the pots can be taken from under them, which will give them a good bit more air space between them and the glass. Where movable stages are used they can easily be dropped a brick or so during the summer months. Six inches or so further away from the glass gives a lot more air space, and heat from the glass does not affect the plants so badly, especially where blinds are not used.

CALANTHES should be potted as soon as they commence to grow. Shake all old material from the roots, which latter roots can be shortened, leaving just sufficient to hold them firm in the pot. Any bulbs that are diseased should be discarded, as they are only an eyesore and can never be cured. Good varieties can be propagated by the old bulb. Place the back bulbs in pans, and fill round with crocks to hold them in place till they break, when they can be potted up singly, and will make nice bulbs by the end of the season. Good fibrous loam, dried cow manure, broken up fine, and leaves, with plenty of broken charcoal and crocks, makes a good compost. Use about two-thirds loam. They can be potted singly, or several in a pot where specimens are required, but do not overpot them. Keep the base of the bulb about an inch below the rim of the pot, as they like plenty of water when in full growth. Where a house is not provided for them a melon house suits them to grow in, or a warm corner in the stove house. They must be very carefully watered until the pots get full of roots, then a plentiful supply should be given. Should the black spot make an appearance give a little extra ventilation, and water more carefully for a time,

which will check it before it gets hold. When once it gets a firm hold the plants are better burnt, as they are useless and only eyesores, but a little care will prevent it if taken in time.

THUNIAS, as soon as they commence to grow, should be potted. These are very quick-growing Orchids, and can be had in flower in from six weeks to two months from the time of starting, and will make growths three or four feet long. The flowers are very beautiful, and they make a fine display, and are very useful both as foliage and flowering plants for groups. A compost similar to that advised for Calanthes will suit them, and they must be carefully watered till they make a good many roots, and are growing strong, then they like plenty of water. Liquid manure in alternate waterings will produce fine growths and abundance of flowers. The foliage should be kept well syringed whilst they are growing, as they are rather subject to attacks of red spider if grown in a dry atmosphere. They should be staged in a nice sunny corner in the stove, and must not be heavily shaded at any time if flowers are wanted. When shaded they make sappy growths, and do not flower so well.

LYCASTES are among the best winter flowering plants we have, as they will stand fog or any sort of weather, and either for cutting or decorative work they are most useful. They are not difficult to grow, and do not get bothered with insect pests like many others do. They will grow well in an intermediate temperature. A batch of the different varieties makes a very pretty group. L. Skinneri alba is a beautiful subject when well grown. Plants that have passed out of flower should be examined, and those that require potting or top-dressing should be attended to. A compost of turfy loam and peat in equal quantities, with plenty of crocks and lumpy charcoal to keep it open, will suit them well. Plants that are in good condition should not be disturbed, but old material should be picked out from the top of the pot and a surfacing of new compost added. Plants that are pot-bound should be shifted into pots about two sizes larger, so as not to want shifting again for two years or so, and plants which have got into bad condition should be shaken out and given a fresh start. Generally these will need a smaller-sized pot. In potting them the plant should be kept quite an inch below the rim of the pot, so that plenty of water can be given in the growing season. They enjoy a good syringing when they are growing, which also keeps the foliage clean.

SEEDLINGS of different sorts should be pushed along now the bright weather is coming, and any that are getting pot-bound should be given a shift on. Plenty of moisture in the atmosphere and fairly high temperatures should soon help them to make good sturdy plants before the winter is here again. They must be carefully shaded during the summer months. A movable shading is better for these than permanent shading. Double

blinds can easily be fixed up, and one lot can be rolled along the glass, on runners, and the other lot can be raised above them again, and either worked with cords or run along the house the same way as the lower blinds.

DENDROBIUMS, as they pass out of flower, should be examined, and potted or top-dressed, as they soon start to make roots from the young bulbs, and the sooner they are done the better. A compost of peat, leaves and crushed crocks, with a little moss, will suit them. In potting these, too, we find they are better potted below the rim of the pot rather than moulded up. Dendrobes should not be given larger pots than necessary, just large enough to get them in without breaking their roots. When imported plants are being potted as small pots as possible should be used until they start to root, then if they require a larger pot the one they are in can be smashed and the pieces removed, and then they can be dropped into a larger pot. Dendrobes like plenty of sun, and whether suspended from the roof or grown on stages they must be given plenty of light if they are expected to flower. For the little trouble they give there are not many other Orchids which yield a larger return of flowers than Dendrobes, and they last a long time in perfection. They require abundance of water and ventilation in the growing season, especially when they are grown with very little shade, as the sun soon dries up small pots, which seems to be what they like.

LÆLIA ANCEPS will be commencing to grow. They should be given plenty of sun, and very light shading just in the middle of the day will be all the shade they require. The harder they are grown the better and more flowers they produce. They do not like being disturbed much, so that unless the new growth has run over the edge of the pot or basket, and the compost is in good order, resurfacing will be all they require. They are beautiful Orchids, either for cutting or grouping, as their long graceful spike make them almost indispensable for autumn and winter work. They like plenty of water during their growing season.

VENTILATION.—During this month great care must be used in ventilating, as generally we get all sorts of mixed weather. When the blinds are dropped the ventilation should be reduced considerably, or taken off altogether. If there is a cold wind just while the blinds are down do not in any case let the temperatures drop suddenly.

DAMPING DOWN will have to be done more frequently as the days lengthen. Do not let the houses become dry or red spider and thrip will soon make an appearance, and play havoc with the young growths, leaving marks which can never be effaced.

TEMPERATURES should not be allowed to drop below the figures advised in the previous Calendar, especially at night, as the weather is so changeable.

ORCHID EXHIBITION AT BOSTON, U.S.A.

I ENCLOSE an advance prize list for a special Orchid Exhibition which the Massachusetts Horticultural Society will hold in the Horticultural Hall, Boston, on May 26-30, 1910. Our idea is to stimulate the growing interest in Orchids, and we are offering what we consider fairly good prizes. We anticipate a very fine show, the best of its kind ever held in America, and are already assured of the hearty co-operation of a number of our largest trade and private growers. In addition to the prizes offered, there will be special awards of Gold and other Medals for exhibits outside the limits of the classes provided.

We would like very much to interest a few of your trade and commercial houses sufficiently to send a few plants or cut flowers over. We assure them that they will be much appreciated, and any exhibitors coming to the "Hub of the Universe" will receive a warm welcome.

We are well aware that owing to our hot summers we cannot produce Odontoglossums and other Cool Orchids as in Britain, but we can show Cattleyas and some other varieties growing better than anywhere else in the world, and we hope that there are a few on your side who will essay the journey, if only to see what is being done with Orchids in the New World.

I may say that we will have extensive honorary displays of Azaleas and other seasonable plants in addition to the Orchids, although the latter will, however, be the leading feature.

Professor C. S. Sargent, of Brookline, who is a frequent visitor to the Vincent Square and Temple Shows, first suggested the holding of this Show. The committee acting with him in arranging the details are: J. K. M. L. Farquhar (Chairman), Wm. J. Stewart, Edward McNulkin, and myself.

I will be glad later to send you any additional notes of interest on this proposed Show, and will be pleased to send you a report of the same, and a few photos if you would care for them. WILLIAM N. CRAIG.

Superintendent Gardener,
F. L. Ames' Estate,
North Easton, Mass.

SCHEDULE OF PRIZES.

For the best display of Orchid plants in bloom, arranged for effect, embracing at least twenty Orchid genera and bi-generic hybrids, and unlimited as to number of species, varieties and hybrids, to fill 400 square feet of space. Cut blooms of rare sorts not exceeding in number five per centum of the total number of varieties of Orchid plants in the exhibit will be admissible.

In the arrangement, other stove and greenhouse flowering and foliage plants may be used, and the general effect produced (with or without such plants) will be considered by the judges in making awards as per the following scale of points: Variety of Orchids, 20 points; quality of Orchids, 25; arrangement and decorative effect, 40; novelty of Orchids, 15.

First prize, Gold Medal and 1,000 dollars; Second prize, Silver Medal and 500 dollars: Third prize, Bronze Medal and 250 dollars.

For the best display of Orchid plants in bloom arranged for effect, embracing at least ten Orchid genera and bi-generic hybrids, and unlimited as to number of species, varieties and hybrids, to fill 150 square feet of space. Cut blooms of rare sorts not exceeding in number five per centum of the total number of varieties of the Orchid plant in the exhibit will be admissible.

In the arrangement, other stove and greenhouse flowering and foliage plants may be used, and the general effect produced (with or without such plants) will be considered by the judges in making awards as per the following scale of points: Variety of Orchids, 20 points; quality of Orchids, 25; arrangement and decorative effect, 40; novelty of Orchids, 15.

First prize, Gold Medal and 200 dollars; Second prize, Silver Medal and 100 dollars; Third prize, Bronze Medal and 50 dollars. Commercial growers are excluded from competition.

For the best recently introduced Orchid plant not previously exhibited in the United States—Gold Medal.

For the best new seedling Orchid plant not previously exhibited in the United States—Gold Medal.

For the largest and best display of cut Orchid blooms arranged with ferns or other foliage. Variety and decorative effect will be considered.

First prize, Gold Medal and 100 dollars; Second prize, Silver Medal and 50 dollars; Third prize, Bronze Medal and 25 dollars.

For the best collection of cut Orchids of new varieties not before exhibited in the United States. Ferns or other foliage may be used in the arrangement. First prize, Gold Medal.

There are also substantial prizes offered for the best group of flowering and foliage stove and greenhouse plants arranged for effect; for the best new stove or greenhouse plant in bloom not previously exhibited in the United States; for the best new stove or greenhouse foliage plant, exclusive of ferns, not previously exhibited in the United States; for the best Coniferous plant not yet disseminated, and likely to be hardy in Massachusetts; for the best new shrub or climber in bloom likely to be hardy in Massachusetts, and not previously exhibited in the United States; and for the best new herbaceous plant in bloom likely to be hardy in Massachusetts, not previously exhibited in the United States.

ODONTOGLOSSUM × SMITHII.

THIS very distinct and striking hybrid is now in the collection of J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), and was exhibited in fine condition at a meeting of the R.H.S. held on February 23rd last, the inflorescence bearing four flowers. It was raised by Messrs. Charlesworth & Co. from O. Rossii rubescens ♀ and O. × crispo-Harryanum ♂, and received a First-class Certificate from the R.H.S. on December 5th, 1905, when it flowered for the first time, and when the annexed photograph was

Fig. 7. ODONTOGLOSSUM × SMITHII.

taken. It is quite unique in colour, the disc of the sepals being light green, and of the petals cream colour, while the apex and margin are of a peculiar violet-purple, with some blackish purple blotches. The front lobe of the lip is violet-purple with a few blackish spots on the lower half, and the crest shows some of the character of O. Harryanum, while the column and its wings are more like O. Rossii, which it also most resembles in the inflorescence.

DENDROCHILUM GLUMACEUM VAR. VALIDUM.

At a meeting of the Manchester Orchid Society, held on February 18th last, a fine plant of Dendrochilum glumaceum var. validum was exhibited from the collection of G. Shorland Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), and received a First-class Botanical Certificate and a Cultural Certificate. We cannot give an illustration of the actual plant certificated, but may repeat one of a plant which flowered in the collection of O. O. Wrigley, Esq., Bridge Hall, Bury. It differs from the type in its stouter

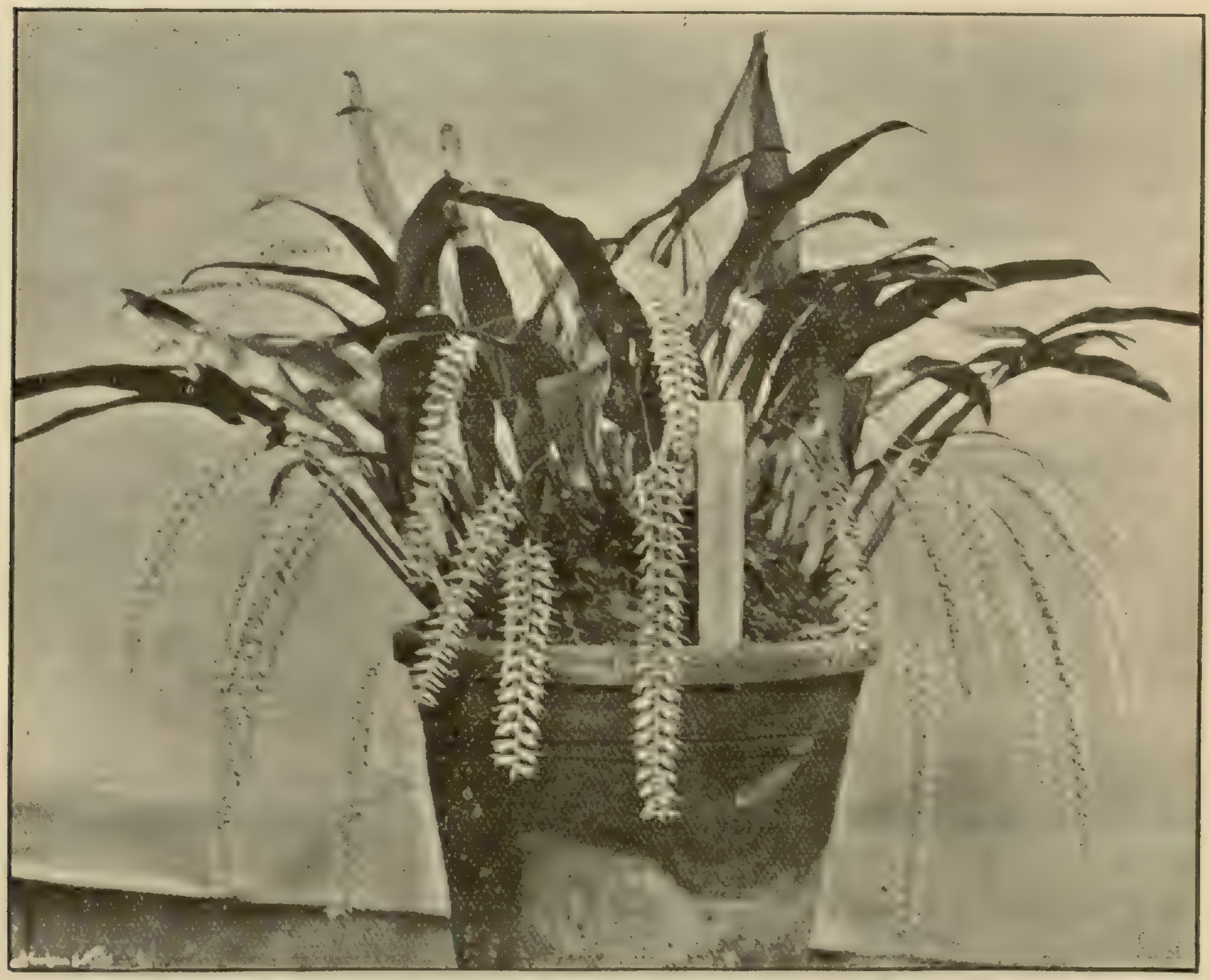

Fig. 8. Dendrochilum glumaceum var. validum.

habit and much broader leaves. It is a native of the Philippine Islands. It is a robust grower, and a good plant to grow on into a specimen, under which circumstances its graceful character is seen to the best advantage. It thrives well in the Cattleya or Intermediate House, in well-drained pans, in a compost of fibrous peat and sphagnum moss, and any potting that may be required should be done after flowering, when the young growths begin to push. During actual growth a liberal supply of water should be given, and at other times there should always be enough to keep the compost moist. It is a charming companion for the equally graceful D. filiforme.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on February 9th last, when there was a magnificent display of Orchids, and the awards consisted of one Gold and seven other Medals, one First-class Certificate, and two Awards of Merit. The award made to Cypripedium × Earl of Tankerville at the last meeting (p. 51) was reconsidered, and raised to a First-class Certificate.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), staged a fine group of Odontoglossums and other Orchids, to which a Silver-gilt Flora Medal was given. It contained a fine series of blotched forms of O. crispum, including the handsome O. c. Mossiæ, and another very distinct form with deep reddish purple blotches, some good O. × ardentissimum, Cypripedium × Chapmanii Oakwood var., Brasso-catlælia Cooksoni (Brassolælia Gratrixiæ × Cattleya Dowiana), having a handsome yellow flower tinged with copper-red, and other good things. A First-class Certificate was given to O. × ardentissimum Phœbe, a very handsome form, having rich claret-coloured sepals and petals, with white margin and apex, and a well marked lip.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), sent a few choice things, including a beautiful example of Cymbidium × Holfordianum with two spikes, Læliocattleya Goldfinch var. Argus, having deep yellow flowers with an Indian-red lip, Cypripedium × Helen II., Holford's var., and a magnificent specimen of Odontoglossum × crispo-Harryanum, bearing four branched spikes and an aggregate of 125 flowers, the largest bearing as many as sixty-one. It was a magnificent example of good culture, and a Lindley Medal was awarded to Mr. Alexander. An Award of Merit was given to Læliocattleya Goldfinch superba (L.-c. warnhamiensis × C. Dowiana aurea), a beautiful free-flowering hybrid, having deep yellow sepals and petals and a deep crimson-purple lip, with some orange lines at the base.

J. Foster Alcock, Esq. Exhims, Northchurch, sent Cypripedium × Helen II., Exhims var., C. × Leoniæ, Gratrix's var., and C. × Leander, Exhims var. (villosum × Leeanum), the latter receiving an Award of Merit. It had a large circular white dorsal sepal, blotched with rose-purple, and broad yellow petals, while the lip was tinged with purple-brown.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), showed a branched inflorescence of Epidendrum erubescens, a rare Mexican species with pink flowers, which had been in bloom for some time.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting group, including two varieties of Pleione

yunnanensis, Restrepia striata, the pretty little Pleurothallis astrophora, Masdevallia cucullata, M. Chimæra, M. C. aurea, Dendrobium macrophyllum, D. Kingianum album, the graceful little D. æmulum, with some good hybrids, including the pretty Phaiocalanthe Colmanii and others.

The Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), sent Cattleya Trianæ, Blenheim var., a large and richly coloured form.

Sir William Marriott, Down House, Blandford, sent cut spikes of the brilliant Sophrocattleya warnhamiensis var. Cerise, and Sophrolælia Marriottiana.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent a form of Odontioda Bradshawiæ, having rather broader segments, and more distinct markings than the original form.

Messrs. Charlesworth & Co., Haywards Heath, staged a magnificent group, to which the Society's Gold Medal was awarded. The centre consisted of about one-hundred fine specimens of Phalænopsis Schilleriana, excellently grown and profusely flowered, making a most beautiful display, and with them were the pure white P. S. vestalis, P. Stuartiana, P. × intermedia Portei, and others. At one end of the group was a fine lot of hybrid Odontoglossums, Odontiodas, Miltonias, Brassocattleyas, &c., and at the other end a number of good Læliocattleyas, with a batch of Cattleya × Enid, the brilliant Renanthera Imschootiana, &c. In front were arranged a row of the pretty yellow Oncidium cheirophorum, edged with the scarlet Sophronitis grandiflora, the whole forming a very beautiful exhibit.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a fine group, consisting largely of choice Cypripediums, and including some good C. × aureum, C. × Mrs. Wm. Mostyn, C. × Vandyke, C. × Miss Louisa Fowler, with some good Lycaste Skinneri, Angræcum eburneum, Vanda Amesiana, some good Odontoglossums, and a number of well-grown Sophronitis grandiflora, with some good Calanthe × Bryan in the centre.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Flora Medal for a fine group of white Lælia anceps varieties, very well grown and profusely flowered, and making a fine display.

Messrs. Hugh Low & Co., Bush Hill Park, also received a Silver Flora Medal for a fine group, including some good Dendrobium × Wiganiæ xanthochilum, D. nobile virginale, D. speciosum, Bulbophyllum cupreum, Cypripedium × aureum virginale, with eight flowers, C. × a. Surprise, examples of Sophronitis grandiflora, and other good things.

Messrs. J. W. Moore, Ltd., Rawdon, Leeds, received a Silver Banksian Medal for a good group, consisting largely of Cypripediums, noteworthy

among them being the fine dark C. × Mrs. Francis Wellesley, C. Rothschildianum Dulcote var., C. × Tracyanum, C. × Chapmanii, C. × aureum Hyeanum, C. × a. compactum, C. × Sallieri varieties, &c.

Messrs. James Veitch & Sons, Chelsea, also received a Silver Banksian Medal for a nice group of Odontoglossums and Cypripedium × Countess of Carnarvon, the latter showing much variation.

Messrs. Armstrong & Brown, Tunbridge Wells, sent the fine Cypripedium × Euryades New Hall Hey var.

Mr. Wm. Bolton, Wilderspool, Warrington (gr. Mr. Caen), sent Cypripedium × Iris magnificum (Chamberlainianum × Maudiæ), a very pretty form, most like the former, but larger, and having the dorsal sepal lined with purple on a white ground, becoming green at the base, the undulate petals yellowish veined with purple-brown, and the lip densely spotted with purple.

Messrs. Duchesne, Lanthoine & Co., Watermael, Belgium, sent Cattleya Schrœderæ, The Giant, with many pale lilac flowers of good size and shape.

Mr. F. McBean, Plumpton, sent several good varieties of Cattleya Trianæ and Odontoglossum crispum, the latter including a very prettily spotted variety.

M. Mertens, Ghent, sent a small group of hybrid Odontoglossums.

At the meeting held on February 23rd, there was a very fine display of Orchids, and the awards consisted of four medals, three First-class Certificates, six Awards of Merit, one Botanical Certificate, and one Certificate of Appreciation.

Lieut.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), received First-class Certificates for Læliocattleya Pizarro Westonbirt var. (L. Jongheana × C. Dowiana aurea), a very fine and richly-coloured form, and for Cattleya Trianæ Mooreana, a beautiful variety, having rosy-lilac petals of excellent shape, becoming darker at the apex, and the lip rich crimson-purple in front of the yellow disc.

G. F. Moore, Esq., Bourton-on-the-Water (gr. Mr. Page), received Awards of Merit for Cypripedium × Bridgei magnificum (Godseffianum × Argus), a large and handsome form, having a green dorsal sepal suffused with dusky brown and margined with white, and the apex of the petals rosy-purple, and for C. × Curtmanii (M. de Curte × Beeckmanii), having the dorsal sepal green, blotched with dark brown below and white above, the broad petals shining mahogany brown with a few spots, and the lip brown in front. He also sent C. × Graceæ var. W. F. Page, having white flowers prettily marked with purple.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier),

sent a very interesting little group, including Bulbophyllum comosum bearing five racemes of its pretty white hairy flowers, Cirrhopetalum Mastersianum, the rare C. retusiusculum, a brightly-coloured *Zygocolax*, Angræcum hyaloides, Masdevallia erythochæte, the rare Dendrobium Mortii, and D. × Lady Colman (Artemis × Findlayanum), the latter a very large and handsome form, having light rosy flowers with a very large dark maroon blotch on the lip, which gained an Award of Merit. He also sent single flowers of twelve pretty varieties of D. nobile.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent the fine dark Odontoglossum × Queen Alexandra var. Theodora, O. × Zena, and O. cariniferum, the latter gaining a Botanical Certificate.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Black), sent Dendrobium × chessingtonense, and the variety Kingcup, having deep orange-coloured flowers, with a large maroon blotch on the lip, D. × Artemis, and D. atro-Brymerianum (atroviolaceum × Brymerianum), a very curious hybrid to which the new Certificate of Appreciation was awarded. It most resembles the former parent, and the flowers are greenish with small purple spots, and the lip shows some purple veining.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent the handsome Odontoglossum × Smithii with a four-flowered inflorescence.

J. H. Hill, Esq., Burgess Hill, Sussex, sent Cypripedium × Richmanii superbum.

Messrs. Sander & Sons, St. Albans, sent a very fine group, to which a Silver-gilt Flora Medal was given. It contained a fine lot of Odontoglossums, noteworthy among them being the fine O. × crispo-Harryanum brugense, O. × Irene (triumphans × Kegeljani), a pretty yellow flower barred and blotched with reddish brown, O. × Vuylstekeæ, O. × gemmatum (triumphans × elegans), O. × Nysa (Hunnewellianum × triumphans), O. × hellemense (harvengtense × crispum), O. × Vulcan (crispum × Vuylestekei), O. × Hellenus (harvengtense × crispum), O. × Hesperus (Harryano-crispum × Vuylstekei), O. pulchellum, a good O. Pescatorei, some fine Phalænopsis Schilleriana and Lycaste Skinneri, Saccolabium bellinum, the rare Waluewa pulchella, Polystacha pubescens, Cattleya amethystoglossa, Brassocattleya Rowena and Thorntoni, Oncidium splendidum, the pure white Calanthe hololeuca and other good things.

Messrs. Charlesworth & Co., Haywards Heath, sent a fine group, to which a Silver Flora Medal was given. It contained a fine specimen of Trichopilia suavis, some good forms of Odontoglossum × Ossulstoni, O. × amabile, O. × crispo-Harryanum, Angræcum citratum with three spikes, Læliocattleya Myra, Miltonia × Bleuana, Oncidium cucullatum, Cypripedium × Rossetti, some good C. × aureum, C. villosum auriferum, Dendrobium infundibulum, and other good things. A First-class Certificate

was given to Odontioda Lutetia (O. luteopurpureum × C. Nœtzliana), a large and handsome hybrid, having yellow flowers, tinged and splashed with cinnabar red, and an Award of Merit to O. keighleyensis (O. cirrhosum × C. Nœtzliana), having the flowers almost dark scarlet, but most like O. cirrhosum in shape.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group, including Dendrobium × Melpomene, D. × Leechianum, Masdevallia macrura, Miltonia × Bleuana, M. vexillaria, Ada aurantiaca, Cattleya Trianæ, Platyclinis violacea, Sophronitis grandiflora, Oncidium splendidum, Cypripedium × villexul, C. × Beeckmanii, &c.

M. Mertens, Ghent, received a Silver Banksian Medal for a group of about a dozen good hybrid Odontoglossums, including forms of O. × amabile, O. × laudatum, O. × Vuylstekei, and others.

Messrs. Armstrong & Brown, Tunbridge Wells, received an Award of Merit for Cymbidium × Woodhamsianum Orchidhurst var. (Lowianum × eburneo-Lowianum), a very good form bearing five spikes of bloom.

Mr. H. A. Tracy, Twickenham, received an Award of Merit for Cycnoches peruvianum Tracy's var., the plant bearing five short dense racemes of male flowers.

Messrs. Hugh Low & Co., Enfield, sent Cattleya Trianæ Lowiæ, Cypripedium × aureum, C. × chrysotoxum Victor, Cymbidium × Woodhamsianum, Dendrobium chessingtonense, and a few others.

Messrs. J. & A. A. McBean, Cooksbridge, sent a small group of Odontoglossums, including a good white O. × ardentissimum, a very fine spotted O. crispum, a good hybrid from O. × Wilckeanum × crispum, having yellow flowers blotched with brown, and others.

Mr. F. McBean, Plumpton, sent two good forms of Cattleya Trianæ, one having blush white sepals and petals, and the lip rose-purple in front.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

As compared with the splendid meetings held by this Society recently there was only a moderate exhibition on February 4th at the Coal Exchange. The following members of the Committee were present:—Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Ward, Sander, Cowan, Shill, Warburton, Holmes, Upjohn, Keeling, Ashton, Cypher, Parker, and Weathers (Sec.).

S. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Shill), sent the fine hybrid Cypripedium × memoria Jerninghamiæ, which gained a First-class Certificate. The dorsal sepal has a clean white ground with a green base, and a large purple-brown blotch tapering to a point at the apex, and the lateral sepals are a rich warm brown, lighter on the lower half, and quite 1 1-8th inches broad. Mrs. Mary Gratrix sent a fine Cypripedium

Actæus Gratrixiæ, which also gained a First-class Certificate; a fine well-balanced flower, with broad round dorsal sepal, the upper half white, and the lower apple green, and well spotted, and the lip of pale salmon shade (Vote of Thanks).

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a beautiful group, in which Odontoglossums predominated. I noted O. × Phœbe, O. × amabile, O. × Adrianæ, O. × Charlesworthii, O. × armainvillierense xanthotes, several well-grown O. crispum with large round flowers, with Cypripediums × aureum virginale and Hyeanum, and several Dendrobiums (Silver-gilt Medal).

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), sent a fine group of well-grown Cypripediums, all of excellent quality, which gained a Silver-gilt Medal. I noted the fine C. × Flamingo (Award of Merit), two fine plants of C. × chrysotoxum var. Victor, also C. × Victory, C. × Venus Rann Lea var., C. × *Z*eno Craven's var., C. × Mrs. Wm. Mostyn, C. × Leeanum Lavertonianum, C. × Beeckmanii, C. × Boadicea magnificum, C. × Ainsworthii, and many others of equal merit.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a nice group of mixed plants. Cattleya Trianæ Holmesii, a finely-shaped flower, with broad petals, and a lip of rich rose-purple, received an Award of Merit. I noted Lælia anceps Schrœderiana and several well-grown Cypripediums, the chief of which were C. × St. Vincent and C. × Hoyleanum (Silver Medal).

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a group in which high quality Cypripediums predominated. C. × aureum Vine House var., C. × Winnianum Vine House var., and C. Spicerianum all gained Awards of Merit. I noted also well-grown plants of C. × aureum Hyeanum, C. × a. virginale, C. × bingleyense, of fine colour, a good C. × Thompsoni, C. × Ilione (Clio) giganteum, C. × Nandii, and Odontoglossum sceptrum Masereelianum (Silver Medal).

Ed. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), sent several fine Cypripediums. C. × Transvaal Oakdene var., of rich colour, C. × memoria Lord Burton, and C. × Dicksonianum all gained Awards of Merit. I noted also C. × aureum Hyeanum and C. × a. laekenense (Vote of Thanks).

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent Cypripedium × Euryades New Hall Hey var., and a good flower of C. × Thompsoni.

Chas. Parker, Esq., Fern Bank, Ashton-on-Ribble, sent a small group of Cypripedium varieties (Bronze Medal).

H. Arthur, Esq., Pine Villa, Blackburn, staged a mixed group of Cypripediums, in which I noted C. insigne Sanderianum (Bronze Medal).

Messrs. James Cypher & Sons, Cheltenham, gained a Silver Medal for a

good group of Cypripediums. I noted a fine plant of C. × Thompsoni, C. × Clio Chardwar var., C. × aureum virginale, C. × a. Hyeanum, C. × Vandyke, C. × Mrs. Wm. Mostyn, C. × Charlesianum Cypher's var., &c.

Messrs. Hugh Low & Co., Enfield, gained a Silver Medal for a nice group, in which I noted Cypripedium × Deputy Galpin, C. × Actæus superbum, C. × aureum Surprise, C. a. Hyeanum, C. × Thompsoni, &c. Cymbidium × Wiganianum received an Award of Merit.

Mr. Wm. Bolton, Wilderspool, Warrington, staged a few good Cypripediums, which included C. × conco-callosum var. McNabianum, C. × Euryades Rossendale, C. × Fascinator nobilius, C. × Thompsoni, &c., with a fine cut spike of Cymbidium Sanderi (Vote of Thanks).

Messrs. Keeling & Sons, Bradford, gained a Bronze Medal for a group of mixed plants, including Odontoglossum × aspersum, O. Cervantesii, a well-flowered O. Pescatorei, Dendrobium × Luna, D. × Doris, Cypripedium × aureum The Pearl, C. × Jupiter, &c. C. × Actæus Grangefield var. and C. × Leeanum var. Dorothy gained Awards of Merit.

Mr. J. Birchenall, Alderley Edge, sent *Zygocolax* Amesianus (Award of Merit), Scelochilus variegatus (Botanical Certificate), Mormodes badium luteum, and Cattleya Trianæ alderleyense, an almost white variety.

Mr. J. Robson, Altrincham, sent a nice unnamed Cypripedium hybrid, and an Odontoglossum crispum of good quality.

There was a very good show of flowers at the meeting held on February 18th, almost every group containing some plants of Odontoglossum, which gave the room a very bright appearance. The Committee sat as follows :— Messrs. E. Ashworth (Chairman), Thorp, Ward, Cowan, Shill, Keeling, Holmes, Ashton, Cypher, Parker, Ball and Weathers (Secretary).

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a group consisting of many choice Cypripediums, Cattleyas and Lælias. Cattleya Trianæ var. Sir Lees Knowles gained an Award of Merit. I noted many varieties of C. Schrœderæ, one beautiful form having an aurea-like lip. The best of the Cypripediums were, an unnamed hybrid from C. × General Buller × Minos Youngii, very densely spotted, C. × Leeanum Clinkaberryanum, C. × Ville de Paris, C. × aureum virginale, Dendrobium nobile virginale, &c. The group, divided for Cup purposes, gained Silver and Silver-gilt Medals.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), sent an interesting and effective group of Odontoglossums, excellently grown and flowered. The five following gained Awards of Merit :—O. × loochristiense, Ward's var. (very fine), O. × amabile var. Georgius, O. × a. var. Willie, O. × spectabile Ward's var., and O. × s. album. The latter is a fine creamy-white flower, with dark chocolate markings, though I doubt the recorded

parentage, as the lip showed no trace whatever of Harryanum. I noted also O. × Adrianæ, O. × Rolfeæ, O. × Phœbe, O. × Lambeauianum, and many others of equal merit (Silver-gilt Medal).

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), was awarded a Silver-gilt Medal for a choice group of Cypripediums. C. × Rajah, Rann Lea var. (callosum × triumphans), received a First-class Certificate. It was a very effective and richly-coloured flower, most like triumphans in colour, perhaps richer, and the influence of callosum had considerably improved the shape of the dorsal sepal. C. × Lenora gained an Award of Merit. I noted also C. × Victor, C. × Beeckmanii, C. × triumphans, C. × Olga Bagshawe, C. × Clio giganteum, C. × Boadicea magnificum, C. insigne King Edward VII., and many others.

G. Shorland Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), staged a very pretty group, full of varied interest, which gained a Silver-gilt Medal. A model plant of Dendrochilum glumaceum validum gained a First-class Botanical Certificate and Cultural Certificate, Cœlogyne sparsa a First-class Botanical Certificate, and Bulbophylum comosum a Second-class Botanical Certificate. A Cultural Certificate also went to Lycaste plana Measuresiana, a fine plant with thirteen open flowers. I noted also the rare Lycaste × Balliæ and L. Skinneri alba, a fine Cypripedium × Euryades splendens, C. × aureum Surprise, C. × Leander (Leonidas), C. × Minos Youngii, C. Curtisii var. Excelsior, Dendrobium × xanthocentrum, &c.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), staged a tastefully-arranged group of choice Odontoglossums, which gained a Silver-gilt Medal. The bright scarlet Odontioda Bradshawiæ gained a First-class Certificate and Odontoglossum × armainvillierense var. Ashworthianum an Award of Merit. I noted also O. × a. xanthotes, O. × spectabile, O. × waltonense, O. × Ruckerianum splendens, O. crispum Starlight, Cypripedium × Minos Youngii (very fine), C. × aureum Hyeanum, and a fine hybrid from C. × Maudiæ × C. gigas, &c.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged groups of Odontoglossum and Cypripedium, each gaining a Silver Medal. Odontoglossums × venustulum and O. × Primus, of unrecorded parentage, were given Awards of Merit. I noted a fine plant of O. × Andersonianum, O. × Wilckeanum, O. crispum Owenianum, Cattleya × Marjorie, Cypripedium × Euryades versicolor, C. × aureum Cyris, C. × Evansianum, C. × Lathamianum var. Thompsoni, &c.

E. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), sent Cypripedium × Prospero Oakdene var., C. × aureum Vertumne, and Odontoglossum × W. C. Price, all of which received Awards of Merit. Included in the small group were Cypripedium × Thalia Mrs. F. Wellesley, and C. × Minos Youngii, with the colour finely developed (Vote of Thanks).

S. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Shill), sent a fine new hybrid Cypripedium × Lady Ursula (Schlesingerianum var. Mrs. Tautz × insigne Harefield Hall). The dorsal sepal had retained much of the insigne, both in shape and spotting, but Boxallii was distinctly traceable in the lateral sepals. This, when grown stronger, should make a handsome flower (First-class Certificate).

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent the chaste Cattleya Trianæ cœrulea, Cypripedium × Minos Youngii, &c.

C. Parker, Esq., Ashton-on-Ribble, gained a Bronze Medal for a small group of Cypripediums.

Messrs. Keeling & Sons, Westgate Hill, Bradford, received a Silver-gilt Medal for an excellent and varied group of plants. Cypripedium villosum Keeling's var., Sophronitis grandiflora maxima, and Spathoglottis × aureo-Vieillardii all gained Awards of Merit. Bulbophyllum Careyanum nigrum, a model little plant, received a Second-class Botanical Certificate. The group included many fine plants of Odontoglossum crispum, Cattleyas, Cypripediums, Odontoglossum × Wiganianum, Tainia penangiana, Cœlogyne sparsa, Masdevallia floribunda, Brassolælia × Helen, Dendrochilum glumaceum, and many others of equal interest.

Messrs. Cypher & Sons, Cheltenham staged an interesting group, chiefly Cypripediums, with an effective edging of well-flowered plants of Sophronitis grandiflora. I noted a fine variety of Cattleya Trianæ, Brassocattleya × Maroni, Cypripediums × aureum Hyeanum, C. × A. virginale, C. × Mastersexul, C. × Leeanum Lavertonianum, C. × vileexul, &c. (Silver Medal).

Messrs. Hugh Low & Co., Enfield, received a Silver Medal for a good group, in which I noted several fine Cattleya Trianæ, Lycaste Skinneri alba, Cymbidium × Holfordianum, Dendrobium nobile virginale, Cypripedium × Euryades splendens, C. × aureum Surprise, C. × chrysotoxum, &c.

Messrs. Heath & Sons, Cheltenham, sent a fine group of Cypripediums which contained varieties of C. insigne, C. × aureum virginale, C. × a. Hyeanum, C. × Aureole, C. × Leander, C. × Mrs. Wm. Mostyn, and C. callosum Sanderæ (Silver Medal).

Messrs. Moore, Ltd., Rawdon, Leeds, staged a bright little group of choice plants, including Dendrobium × Wiganiæ album, D. nobile Cooksonianum, D. × Ainsworthii, D. × Owenianum, Cypripedium × Fowleræ, C. × Maudiæ, several varieties of C. × aureum, and C. × Traceyanum.

Mr. Wm. Bolton, Warrington, sent Cypripedium × Iris magnificum, which gained an Award of Merit. I noted also C. insigne King Edward VII., C. × Maudiæ, C. × aureum Hyeanum, &c.

Mr. J. Robson, Altrincham, sent two hybrid Odontoglossums, well-blotched with claret-colour.

Mr. W. Shackleton, Gt. Horton, Bradford, sent a good plant of Odontoglossum crispum.

Mr. J. Birchenall, Alderley Edge, sent Cattleya Trianæ, Dendrobium nobile Ballianum, and *Zygocolax* Amesianus.

THE HYBRIDIST.

IN connection with the continuation of the *Orchid Stud-Book*, as outlined at pp. 326, 327 of that work, we have received flowers of some additional hybrids, with schedules of their origin and parentage, in the desired form. The records will be included in the List of Addenda which is being prepared. Meantime short descriptions are given here, as it is desirable to place on record at once the characters of the novelties that appear from time to time.

LÆLIOCATTLEYA × GINOTI.—A brilliantly coloured hybrid raised in the collection of M. Joseph Ginot, St. Etienne, France, from Cattleya amethystoglossa ♀ and Læliocattleya Hippolyta var. Phœbe ♂, which flowered for the first time in January last. The sepals and petals are orange-coloured, and the lip strongly three-lobed, with the broad front lobe deep crimson-purple, margined with lilac, and the greater part of the side lobes yellow. The crimson extends down the disc as a broad band, and there are a few crimson lines on either side, becoming stronger at the apex of the side lobes. The petals are an inch broad, by nearly 2½ inches long. It is a fine thing, and the scape at present is two-flowered, and evidently not fully developed.

LÆLIOCATTLEYA × LINOSSIERI.—A very richly-coloured hybrid, raised in the same collection as the preceding, from Lælia cinnabarina ♀ and Cattleya × Parthenia ♂, and now flowering for the first time with a five-flowered raceme. The sepals and petals are nearly 2½ inches long, and of a brilliant reddish orange colour, and the strongly three-lobed lip of a lighter shade, except at the margin of the obovate much crisped front lobe, which is reddish. The scape is about a foot long, and owing to the free-growing habit of the plant and the brilliantly coloured flowers it is a highly decorative hybrid.

DENDROBIUM × ATRO-BRYMERIANUM.—This is the name given to a remarkable hybrid raised in the collection of R. G. Thwaites, Esq., of Streatham (gr. Mr. Black), from D. atroviolaceum ♀ × D. Brymerianum ♂, to which the new Certificate of Appreciation was given at the R.H.S. meeting, held on February 23rd last. It is most like the former in habit, structure, and in bearing a terminal raceme of several flowers, but the ground colour is changed to greenish yellow, with minute dusky spots,

on the sepals and petals, while the violet-colour has gone from the lip, which is lined throughout with confluent lines of deep brown spots, rather more scattered on the front lobe. The lip is slightly denticulated, but not fringed. Mr. Black remarks that it has been something like eight years in reaching the flowering stage.

DENDROBIUM × AUSTINII.—A richly-coloured hybrid, raised in the same collection as the preceding, from D. × Cybele nobilius and the form of D. × Ainsworthii known as splendidissimum illustre, and is thus composed of half D. nobile and a quarter each D. aureum and D. Findlayanum. It is most like a richly coloured D. nobile, having the sepals, petals, and apex of the lip deep rose-purple, with a blackish-maroon disc.

ORCHIDS IN SEASON.

Several interesting flowers are sent from the collection of J. J. Neale, Esq., of Penarth, and among them five forms of Odontoglossum × Adrianæ, and two of O. × Andersonianum, which Mr. Haddon remarks have flowered out of a batch of imported O. crispum. One of the former has a sulphur yellow ground colour and unspotted petals, with a single small blotch on each sepal, and about three others on the front of the lip. A second is bright yellow with a few blotches on each segment. The rest have a white ground, two being heavily blotched with dark brown, while the third has fewer and paler spots. One O. × Andersonianum has a clear white ground with a few dark blotches, the other is the variety Ruckerianum, with a rosy ground and very numerous linear spots, which are very nearly absent from the lip. A beautiful pure white O. crispum with only a few spots on the lip is also enclosed, with flowers of O. nævium, Hunnewellianum, sceptrum, triumphans, Pescatorei, Rossii and pulchellum. Mr. Haddon remarks that the houses are now quite gay with Odontoglossums, Dendrobiums, Cypripediums, Cattleya Trianæ, and Schrœderæ, with numerous botanical species. The plant of Epidendrum polybulbon is covered with flowers again this year, and is beautifully fragrant at certain times of the day, and a plant of E. Stamfordianum with six spikes is quite a picture. Among other interesting things sent may be mentioned Masdevallia triangularis, M. × Heathii, Pleurothallis elachopus, Oncidium Cebolleta and splendidum, the brilliantly coloured Ada aurantiaca, Lælia harpophylla, Restrepia maculata, and Maxillaria variabilis.

Three very distinct and beautiful flowers of Dendrobium × chessingtonense (D. × Wiganiæ var. xanthochilum × aureum), are sent from the collection of R. G. Thwaites, Esq., of Streatham, by Mr. Black. One is the typical light yellow form with blackish-maroon disc, a second the variety Kingcup, in which the ground colour is deep orange buff, and the

disc rich deep brown, and the third is primrose-coloured, with a light maroon disc. The difference in colour is remarkable. A light rosy variety of D. × Ainsworthii is the result of crossing D. nobile virginale with D. aureum. Mr. Black asks where the rosy colour has come from as it does not appear in D. aureum. A correct answer would solve many difficulties, but we consider it to be another case of reversion, like that recorded at page 57, excepting that in this case the cross has been reversed.

Four hybrid Paphiopedilums are sent from the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill, by Mr. Thurgood, three of which are forms of hybrids already known. P. × nitens giganteum × villosum aureum is a very handsome form of P. Colossus, and has regained much of the villosum character, from which it is three-fourths derived. The dorsal sepal, however, is broader, and green with a lighter margin and some large dark brown blotches. The broad petals, as well as the lip and staminode, strongly recall P. villosum. A second is from P. × Harrisianum × villosum, and thus is a form of P. × conspicuum. This also is three-fourths derived from P. villosum, with which it most agrees in shape; the dorsal sepal, however, is much suffused with deep shining brown, in which the character of P. barbatum is seen. The third is said to have been derived from P. insigne Brownii × nitens var. Almos, which would make it a form of P. Romulus, but from the general shape of the flower and the colour of the dorsal sepal it might well be a form of the preceding. The fourth is said to be from P. exul × Calypso, and bears a general resemblance to the seed-parent in shape and colour, in fact the influence of P. Spicerianum and P Boxallii is scarcely apparent. The parentage of the two last seems to require confirmation.

A flower of a brilliantly-coloured form of Odontioda Bradshawiæ is sent from the collection of R. G. Thwaites, Esq., Streatham, having rather broader segments than the original form, and with distinct crimson markings on a yellow ground. Mr. Black remarks: "The pollen parent was a full rosy Odontoglossum crispum, and it is curious to know where the marbling has come from, as it resembles in this respect the original Odontioda Vuylstekeæ. Had a blotched crispum been used the markings would have been readily explainable."

VANDA × MOOREI.

ANOTHER plant of this very interesting natural hybrid has appeared, a flower having been received for determination from Messrs. Sander & Sons, St. Albans, though without any note of its history. The hybrid originally appeared in the establishment of Messrs. J. W. Moore, of Bradford, nearly twelve years ago, in an importation of V. Kimballiana, and was described by the writer (*O.R.*, v. p. 329). It received an Award of Merit from the

R.H.S. on October 12th, 1897. The original plant is most like V. Kimballiana in habit, but the leaves are twice as broad and nearly flat. The flower is also most like the latter, except as regards colour, and the shape of the front lobe of the lip. The sepals and petals are lilac, and the front lobe of the lip like V. cœrulea in shape, but rather broader, and dull purple in colour. The elongated spur quite recalls V. Kimballiana. The flower sent by Messrs. Sander is much brighter blue than the original, but quite agrees in shape. It is a very handsome thing, and we would suggest that our hybridists should try to raise a batch of it by crossing the two species.

R. A. ROLFE.

ODONTOGLOSSUM × GROGANIÆ.

IN further reference to Odontoglossum × Groganiæ (pp. 30, 60), I should like to add another good quality it possesses, and that is the length of time the spike lasts in flower. We bought a plant on December 10th last, which to our certain knowledge had been open from about November 20th, and possibly longer. We fertilised two flowers on December 11th, two more on January 22nd, and a fifth (the last flower to open) on February 11th. Thus the one spike had been bearing flowers about three months, and is now carrying four pods, the fifth having failed to set. In our opinion this is decidedly the best O. Edwardii hybrid yet seen, and the secondary crosses obtained from it should produce some very fine things. Unfortunately, as far as our experience goes, the pollen of O. × Groganiæ is useless, just as we found the pollen of O. × Thompsonianum (Edwardii × crispum). I have tried it with various Odontoglossum flowers, but without any result, and it looks just as Thompsonianum pollen looked, hard and dark.

Streatham Hill. E. THWAITES.

BULBOPHYLLUM NEWPORTII.

AN interesting little Australian Orchid was described in 1902 by Mr. F. M. Bailey, under the name of Sarcochilus Newportii (*Queensl. Flora.*, vi. p. 2014), but an examination of an original specimen received at Kew shows that it belongs to Bulbophyllum, with which it agrees both in habit and structure. It was found on Mt. Alexandra, Queensland, by Mr. Howard Newport, after whom it was named. It approaches B. exiguum, F. Muell., in habit, but has much stouter rhizomes and flowers twice as large. The flowers are borne on a short slender scape, about three inches high, and are described as pinkish, with three longitudinal darker lines. The pseudobulbs are rather small, and the leaves oblong, and about an inch long. It is not known to be in cultivation.

R. A. ROLFE.

ERIA ERIÆOIDES.

THIS is the Dendrobium eriæoides, F. M. Bailey (*Syn. Queens. Fl.*, suppl. 2, p. 56), a species described in 1888 from a plant collected by Dr. T. L. Bancroft, at the Johnstone River, Queensland. The author remarked: "The pollen masses correspond, both in form and number, with those of Dendrobium, but the general aspect of the plant is so unlike that of any of this genus with which the author is familiar that its final inclusion under Dendrobium is a matter of uncertainty." A specimen at Kew, sent by Mr. Bailey, has all the flowers fertilized, so that the pollen masses cannot be made out, but the habit, structure and hairy flowers agree so completely with Eria that I believe it must be transferred there. It seems to be a somewhat anomalous species of the section Urostachya. The description was made from a plant which flowered at Bowen Park, Queensland.

R. A. ROLFE.

CYPRIPEDIUMS.

The monthly meeting of the Bolton Horticultural and Chrysanthemum Society was held on Tuesday, February 2nd, at the Spinners' Hall, St. George's-road. The subject was the cultivation of Cypripediums, by a well-known expert grower, Mr. Robert Johnson, lately of Stand Hall, Whitefield, Manchester, now of Southport. The Chairman, Mr. R. Smith, commented upon the subject as one that had rapidly come to the front. Mr. Johnson said anyone who had attended the Orchid meetings in London and Manchester during the last three months would agree that eighty per cent. of the plants exhibited had been Cypripediums, a proof that Cypripediums were greatly prized. Commenting on the most beautiful varieties that had been raised from seedlings and by hybridisation, he expressed a firm belief that still better results would be obtained in the future. He said division was the best method to adopt for increasing the stock. Cypripediums were a most valuable family, especially for flowering in the dull months of the year. They remained uninjured by fog, whilst many other Orchids were destroyed.—*Journal of Horticulture.*

NOTES.

TWO meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during March, on the 9th and 23rd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The next meeting will be held on April 6th.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on March 4th and 18th. The Committee meet at noon, and the exhibits are open to inspection from 1 to 4 p.m. The next meeting will be held on April 1st.

ORCHID PORTRAITS.

ANGRÆCUM AUGUSTUM.—*Gard. Chron.*, 1909, i. p. 89, with suppl. t. This is A. Augusti, Rolfe.

CYPRIPEDIUM × EARL OF TANKERVILLE.—*Gard. Chron.*, 1909, i. p. 101, fig. 49.

CYPRIPEDIUM × MRS. WM. MOSTYN.—*Journ. Hort.*, i. p. 157, with fig.

CYPRIPEDIUM × OUR QUEEN.—*Gard. Mag.*, 1909, p. 102, with fig.

LÆLIOCATTLEYA ELINOR.—*Gard. Chron.*, 1909, i. p. 120, with suppl. t.

LÆLIOCATTLEYA FELICIA.—*Gard. Chron.*, 1909, i. 100, fig. 40; *Gard. Mag.*, 1909, p. 101, with fig.

LYCASTE SKINNERI.—*Garden*, 1909, i. p. 99, with fig.

ODONTIODA LUTETIA.—*Gard. Mag.*, 1909, p. 159, with fig.

ODONTOGLOSSUM × ARDENTISSIMUM VAR. PHŒBE.—*Gard. Chron.*, 1909, i. p. 132, fig. 57; *Gard. Mag.*, 1909, p. 134, with fig.; *Journ. Hort.*, 1909, i. p. 137, with fig.

ODONTOGLOSSUM × CRISPO-HARRYANUM.—*Gard. Chron.*, 1909, i. pp. 132, 133, fig. 58; *Gard. Mag.*, 1909, p. 144, with fig.

ONCIDIUM CORYNEPHORUM.—*Journ. Hort.*, 1909, i. pp. 91, 92, with fig.

ONCIDIUM SARCODES.—*Journ. Hort.*, 1909, i. p. 92, with fig.

SOPHRO-CATT-LÆLIA MARATHON VAR. VESUVIUS.—*Journ. Hort.*, 1909, i. p. 113, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

J. M. The Cattleya purchased as a hybrid from "C. Trianæ × speciosissima" looks more like a small form of the former, and we fail to find the characteristic features of C. Lueddemanniana (speciosissima) in it. If a seedling, the parentage requires confirmation.

H. H. Masdevallia triangularis and M. melanopus (not the true M. polysticta).

H. C. B. Unavoidably postponed until next month, with several other matters.

H. A. Oncidium macropetalum, Lindl.

Photographs received with thanks. H. H.

G. S. S. Flowers received with thanks.

We have received from the Agricultural and Horticultural Association, Ltd., 92, Long Acre, London, a copy of the fourteenth issue of *One and All Gardening* for 1909, edited by Edward Owen Greening. It contains articles on a wide series of horticultural subjects, and is, as usual, profusely illustrated, but we do not find anything about Orchids. The price is twopence. From the same source comes two more of the *One and All Garden Books*, entitled "Stocks," by R. P. Brotherson, F.R.H.S., and "Lawns," by W. J. Stevens, F.R.H.S. Price one penny.

Catalogue received.—Fratelli Rovelli, Lago Maggiore, Pallanza, Italy Prezzo Corrente pel, 1909, containing a price list of many popular species of Orchids.

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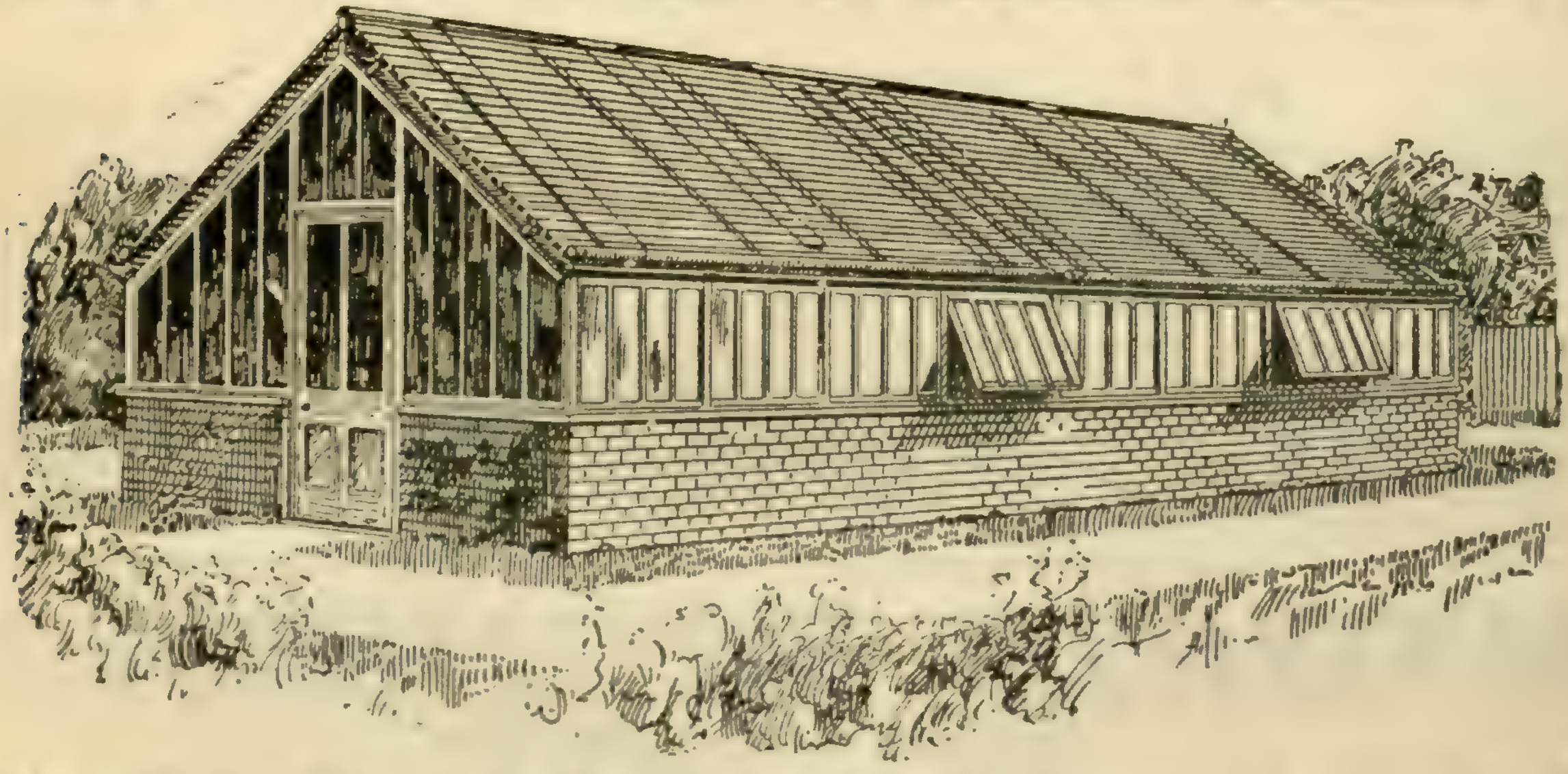

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An Illustrated Journal of Orchidology.

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NOTES ON ORCHIDS OF A BRAZILIAN ISLAND.

By J. J. KEEVIL, Santos, S. Brazil.

THE island of Santo Amaro is situated off the coast of Brazil, lat. 23 south, long. 46 west. The annual rainfall is about 110 inches, of which the greater part occurs in the summer months of January and February. The temperature ranges from 60° to 95° Fahr., average about 80°. The relative humidity of the atmosphere often exceeds 90 per cent.

On the south and east it faces the Atlantic, with hilly islets, lovely sandy bays and coves, interspersed with steep granite headlands. On the west and north it is separated from Santos Island and the mainland by narrow sea channels. It is about eighteen miles long by six broad.

The interior consists of mangrove swamps, granite hills up to 1,000 feet high, covered with forest and old raised sandy beaches with low shrub.

Orchids are abundant, though not easy to find or obtain. The professional collector has not so far ravaged them. Woodcutters destroy scores daily. Wanton forest fires and obnoxious insects also claim their toll. During the summer (October to April), when the majority flower, the woods are stifling and steamy; snakes, poisonous and otherwise, not rare, mosquitoes and innumerable microscopic ticks, which burrow under the skin and irritate there for days, temper one's enthusiasm.

From May to September inclusive the climate is usually perfection. Reptiles and insects more quiescent, and the undergrowth less dense, enabling an easier transit through the woods.

Cattleya intermedia, of several varieties, including alba, exists in a variety of positions. I have found them occasionally on beds of sphagnum (in marshy depressions of raised sandy beaches under the low shrub), which shows that nature anticipated man as to this method of cultivation. They will colonize a few square yards on the top of a bare granite boulder, surrounded by the tide, dashed by spray and subjected to scorching sun and every wind. They also exist high on the branches of trees 1,000 feet above the sea level. Their special metropolis, however, is a low, narrow, wind-swept, marshy valley, with the ocean at both ends, and a steep granite headland and hill at the sides. In the space of an acre there are many thousands.

One has to wade to the knees in mud and swampy water. The gnarled, crowded trees are stunted by the wind to a seven foot growth. Every trunk and branch teems with sturdy intermedias, their roots stretching to the perennial moisture below. In April and May their flowers are resplendent.

Cattleya guttata prefers the higher trees, which would take hours to cut down. Their roots will descend the trunk forty feet or more, and their pseudobulbs attain to five feet and corresponding thickness. The perianths of different specimens vary in colour from very dark spotted brown to light greenish spotted yellow. Some are quite free from spots and of bright brick red or a delicate yellow with vein-like markings.

C. Harrisoniana is found in a similar situation, but is scarce, as also are Lælia purpurata and elegans. C. Forbesii favours plentifully the low shrub at the edge of the high tide mark. A few yards inland and on higher ground Oncidium barbatum, micropogon and longipes will be discovered. O. sarcodes, pubes aurea, and various other Oncidiums, prefer the lower trunk of large trees in dense shade, their racemes shooting up yards for more light.

Gongora bufonia likes the fork of a low tree about three feet from the ground; another Gongora, whose name I know not, accompanies it. They are fertilised by a big blue bee.

Zygopetalum (Huntleya) Meleagris is not scarce, but like many other Orchids is difficult to spot on account of its resemblance at a short distance to Bromelias of numerous species, which cover nearly every tree. (Some of the smaller Bromelias flower beautifully enough to merit more horticultural attention. They should give little trouble in an Orchid house, and roots seem superfluous to them).

Zygopetalum Mackayi (or intermedium) abounds in the sand. I have never seen it as an epiphyte, though some books deny it as a ground Orchid. When a patch of shrub is burned its pseudobulbs seem to suffer little, and it is the first of vegetable life to show green shoots among the cinders.

In sheltered, higher-lying, well-timbered valleys the gorgeous Stanhopea insignis will be found, its large and curious flowers giving a faint odour like French polish. Why did Veitch and Williams doubt its existence in Brazil?

Three or more species of Catasetum specialise themselves by their needle-like upright air roots, and by preferring a dead tree to a live one.

Epidendrum fragrans is delightfully easy to obtain, and after Cattleya guttata is the most perfumed of local Orchids. Epidendrum Capartianum flourishes in many directions. Another Epidendrum of dark bronzed stem and foliage gives a large fine flower with pure white lip, resembling, if not identical with, E. nocturnum. It is self-fertilizing, sometimes forming the

pod without the flower opening. A pretty red Epidendrum belies its name by plentifully growing in the soil at the edge of the cliffs. Many other species of the genus of lesser beauty abound, also Maxillaria, Pleurothallis, and other genera, some with very minute flowers and horticulturally uninteresting.

Cyrtopodiums of large dimensions grow in the arid sands, and occasionally their glue is used by natives. Two or more species of Vanilla start in life as ground Orchids, and after climbing thirty feet or more up large trunks, cut off connection with the soil and become epiphytes.

Sophronitis cernua masses itself round many yards of tall trunks. When in flower, the numerous little points of dazzlingly brilliant colour excite deep admiration. Tree ferns are beautified in spring and autumn by the flowers of *Zygopetalum maxillare*, which grows on them.

According to a legend, a ship from the far East, with Phaius grandifolius on board, was wrecked a few leagues to the south. The Phaius survived, and its descendants are to be met with in many directions.

Amongst the grass there are many flowers resembling Orchis. In the woods again, three or more species of beautiful Miltonia and Rodriguezia will reward the patient searcher, and on the adjacent higher ranges of the mainland, Scuticaria Hadwenii, Colax jugosus, Leptotes bicolor, Bifrenaria Harrisoniæ, Houlettia Brocklehurstiana, Sophronitis grandiflora, S. violacea, and many other gems will greet him.

Well over one hundred distinct species of Orchids exist within a six mile radius, but many months of careful toil through pathless dense forest, climbs over precipitous granite hills, and plunges into evil-smelling swamps are necessary to acquiring an exhaustive local collection. J. J. Keevil.

[We thank Mr. Keevil for this graphic and very interesting account of the Orchids of this small islet, which contains several new facts about the distribution of Brazilian Orchids. The islet is about 200 miles south-west of Rio de Janeiro, and 300 north-east of the island of Santa Catherina, the well-known locality of Læliocattleya × elegans, which it now appears occurs also at Santo Amaro. We suspect that the Cattleya guttata mentioned is really C. Leopoldi, that being one of the parents of L.-c. × elegans. From the facts stated it seems probable that other natural hybrids occur there. The doubt about the habitat of Stanhopea insignis alluded to probably arose through a confusion made by Lindley. The habitat was originally given as S. America only, and Lindley at first confused with it a plant collected at Quito, by Humboldt and Bonpland, which he afterwards transferred to S. bucephalus. Epidendrum Capartianum is synonymous with E. amictum, Rchb. f. We should like to know more about the Catasetums and Gongora mentioned, also the name of the bee which fertilises the latter.—Ed.]

NOVELTIES.

A THIRTY-THIRD decade of New Orchids is described in the last issue of the *Kew Bulletin*, seven of the species being in cultivation, as follows:—

OCTOMERIA ARCUATA, Rolfe.—A Brazilian species, introduced by Messrs. Sander & Sons, and flowered at Kew in November, 1908. It is allied to O. sarcophylla, Rodr., and has light yellow flowers, with the keels and side lobes of the lip, and the column dark red-purple. The leaves become purplish on both surfaces on reaching maturity.—*Kew Bulletin*, 1909, p. 61.

OBERONIA UMBRATICOLA, Rolfe.—A Siamese species, allied to O. pachyrachis, Rchb. f., and having minute buff-orange flowers, arranged in a narrow spike. It was collected at Doi Govtep, in very shady jungle, at 1,500 m. elevation, and flowered at the Trinity College Botanic Garden, Dublin, in November, 1908.—*l.c.*, p. 62.

BULBOPHYLLUM (Cirrhopetalum) CAMPANULATUM, Rolfe.—A Sumatran species, sent from the Brussels Botanic Garden, and flowered at Kew in October, 1908. It is an elegant little plant, and the strongly decurved united lateral sepals give the inflorescence a campanulate shape, in allusion to which the name is given. The lateral sepals are pale pink, with many minute darker dots, and the other segments are pale whitish yellow, striped and fringed with dark purple.—*l.c.*, p. 62.

POLYSTACHYA STRICTA, Rolfe.—A species from British East Africa, which flowered at the Cambridge Botanic Garden in August, 1903. It is allied to P. Rivæ, Schweinf., and has light greenish yellow flowers, with a few faint purple streaks on the base and side lobes of the lip.—*l.c.*, p. 63.

CYCNOCHES DENSIFLORUM, Rolfe.—(See p. 104 of the present issue).

ORNITHIDIUM BICOLOR, Rolfe.—A Colombian species, allied to O. coccineum, but having bright yellow flowers, with a large crimson blotch on the front lobe of the lip. It was introduced by Messrs. Linden, of Brussels, who flowered it in June, 1901, and presented it to the Kew collection. It is remarkable for producing two kinds of growth, the first an ordinary pseudo-bulb, and the second a leafy flowering branch, which produces a succession of flowers from the leaf axils, as in O. coccineum.—*l.c.*, p. 65.

SOBRALIA VALIDA, Rolfe.—A very distinct species, belonging to a small group having an arrested inflorescence, glabrous leaf-sheaths and crested veins to the lip, of which only five species were previously known. The stems are under a foot high, stout, and the flowers whitish yellow, with a deeper yellow band on the lip, becoming orange-coloured in front. A plant flowered at Kew in June, 1907, having been received through Messrs. Sander & Sons. It had been obtained by Dr. Hodgkinson, Wilmslow, from the Darien Gold Mines, Panama, with a few other Orchids.—*l.c.*, p. 65.

The three other species are ERIA SOLOMONENSIS, Rolfe (p. 63), a Solomon

Island species of the Eriura group, collected by Mr. C. M. Woodford, and said to be a common species there; Stauropsis Quaifei, Rolfe (p. 64), a native of the New Hebrides, collected at Santo Peak, Espiritu Santo, at 1,370 m. elevation, by Mr. W. T. Quaife; and Phalænopsis Wilsoni, Rolfe (p. 65), discovered in Western China, by Mr. E. H. Wilson, on cliffs at 1,200 m. elevation. The sepals and petals are described by Mr. Wilson as pink, suffused with purple, and the lip purplish crimson. The leaves, which are absent from the Kew specimen, are described as few and small, and, owing to the very copious roots, the plant has much of the habit of a Dendrophylax.

Noteworthy Calanthes.—Visiting the gardens of J. P. Laird, Esq., J.P., of Oxton, Birkenhead, I noticed some excellent plants of Calanthe ×Veitchii, the flowering racemes of which, when measured, were 43½ inches from base to apex. Throughout the growing season the robust character of the plants was generally observed by gardeners, and the flowering phase was eagerly awaited to note results. The pseudobulbs are 8½ inches in girth, and proportionate in length. The following notes on the cultivation of this most useful Orchid were kindly given by Mr. J. Campbell: "Compost three parts loam, one of leaves, and one of old cow manure, the remaining part made up of equal quantities silver sand and bone-meal. In July the pots are top-dressed with loam and bone-meal. Soot water is freely used during the growing season.—*Journal of Horticulture.*

DIES ORCHIDIANI.

The long-expected "scarlet crispum" is a step nearer realisation, if not already here, for the remarkable Odontioda Bradshawiæ Cookson's var., which received a First-class Certificate from the R. H. S. on March 9th, goes a long way towards realising that much desired ideal. It is not a crispum, and it is not entirely scarlet, but it makes a near approach to both, as might have been seen by the illustration given on page 113 if only it could have been done by the new colour photography, which may one day be available. The scarlet crispum is as ardently longed for as the blue rose, and much more likely to be achieved. Congratulations to Mr. Cookson on another marked step towards that goal of the Orchidist's ambition.

From hybrids to Nomenclature is a very short step nowadays, and we have now another suggestion for the naming of multigeneric Orchid hybrids. Mr. C. T. Druery thinks that a much simpler and more intelligible plan might be adopted than any of those already described. It is, however, only a modification of the existing one, and consists in shortening the compound names already in use, "without, however, sacrificing, for the Orchid expert,

their significance." He thinks (*Gard. Chron.*, 1909, i. p. 171) that "each generic name has a single syllable or dissyllable which could be adopted as its symbol, and be used in such a way that there would hardly be more syllables than genera." He suggests shortening—

Angulocaste	to	Angcaste.
Anœctomaria	,,	Hæmecta or Anæria.
Dossinimaria	,,	Dossaria.
Macomaria	,,	Macaria or Macria.
Chondropetalum	,,	Chonalum.
Zygobatemannia	,,	Zygannia or Batalum.
Zygocolax	,,	Zygolax.
Zygonisia	,,	Aganalum or Zygisia.
Odontioda	,,	Cochlossum or Odontoda.
Odontonia	,,	Miltossum or as hitherto.

In the case of the two trigeneric hybrids he suggests shortening—

Brassocattlælia	to	Brassattlia.
Sophrolæliocattleya	,,	Sophrattlia.

These, he thinks, could be read off instanter, and quite as readily as the longer form.

By a little ingenuity he thinks that even eight genera could be combined, and by way of test he gives an example of uniting the first eight genera in the list, as follows:—

"Chondoszygangochæmagalum."

But whatever does it mean? If he thinks that any Orchidist, expert or otherwise, can read it off or tell its meaning "instanter," without looking at the list, he must be very sanguine. True, he admits that it is "bad enough," but he considers it "only about half as long as the seven generic names combined in the circular as an example of unwieldiness." Here's a paragon of moderation! I think that the authors of that circular have something to answer for.

I fail to see the improvement in the amended list, either on the score of euphony or lucidity. It is true that some of the names are a little shorter, but brevity can be purchased too dearly, and the system that can change Odontioda and Odontonia into Cochlossum and Miltossum, and call it "a step in the right direction," is suggestive of a step backward. It is a delightfully free and easy system, too, considering that it provides an alternative rendering in six out of the ten examples given.

Are the recommendations of the Nomenclature Sub-Committee to be regarded as merely pious opinions, or as something to be carried into

practice? At the R.H.S. meeting held on March 9th the Orchid Committee (so it is reported) gave an Award of Merit to "Brasso-Lælio-Cattleya Cooksonii." But in that famous circular, the ink on which had hardly had time to get dry, we were recommended to write "Brassocattlælia" (it should have been Brassocatlælia), and "without a hyphen." Is history going to repeat itself, or is there some mistake in the report? (After the above was in type came the report that at the next meeting a First-class Certificate was given to Sophro-Lælio-Cattleya × Olive. And yet "Sophrocatlælia" is the proper form of the generic name, dating from 1900 (*O.R.*, viii. p. 354). Perhaps the official report will put things straight).

The worst of setting up a standard of nomenclature and then not acting up to it is that things quickly get into a tangle, and then, when everbody begins to cry out about it, and somebody attempts to set it right, he generally gets a good wigging for his pains. Years ago the R.H.S. appointed a Nomenclature Committee, who after long consideration drew up a set of rules, and said the Orchid Committee should decline to recognise any name not in conformity with the said rules. But the rules were sometimes neglected or forgotten, and now that the authors of the *Orchid Stud-Book* have attempted to put some of the names right, the *Gardeners' Chronicle* remarks "such alterations will cause no small amount of unnecessary confusion." They cite the change of Cattleya × Lady Ingram into C. × Ingramiæ, and of Brassocattleya × Digbyano-Mossiæ into B.-c. × Veitchii (with various others), as examples of the alterations that cause unnecessary confusion. But the former change is in accordance with the R.H.S. rules—and the Orchid Committee should have refused to recognise the other name when they gave an Award of Merit to the plant—and the latter change was made on the advice of the *Chronicle* itself. The hybrid originally appeared under the name of Lælia × Digbyana-Mossiæ, and when it became Læliocattleya × Digbyano-Mossiæ the *Chronicle* remarked: "The generic name is felicitous, but we hope some means may be taken to render the specific name less cumbrous." Very good advice, too, and it was taken when the plant became Brassocattleya × Veitchii (*Q.R.*, x. p. 83), but note the result!

They also cite an article from the Vienna rules that "No one is authorised to reject, change or modify a name," &c., but overlook the fact that it only applies to names which come under the binomial system—and even those rules permit the correction of an error. The *Chronicle*, however, concludes by saying "The *Stud-Book* makes a definite step toward the evolution of order out of chaos," and that would not have been possible by leaving things just as they were.

ARGUS.

CYCNOCHES DENSIFLORUM.

IN November last the Rev. J. C. B. Fletcher, Mundham Vicarage, Chichester, sent male and female flowers of a Cycnoches, cut from a plant which had been obtained from Messrs. Hugh Low & Co. a week earlier. Messrs. Hugh Low & Co. had also just sent us the photograph reproduced herewith, which represents the plant in question. An enquiry as to the

Fig. 9. CYCNOCHES DENSIFLORUM.

origin of the plant elicited the information that it was obtained from Mr. J. Birchenall, of Alderley Edge, and the latter states that it was collected by himself at Simacota, near the River Opon, in Colombia, among some species of Mormodes. It proved to be a new species, and has just been described under the above name (Rolfe in *Kew Bulletin*, 1909, p. 64). The same

photograph has been published under the name of C. maculatum (*Gard. Chron.*, 1909, i. pp. 26, 27, fig. 19), but it is not Lindley's plant of that name, which is a native of Venezuela, and has larger flowers. C. densiflorum is nearer to C. Rossianum and C. peruvianum, but the male inflorescence is shorter, and much more dense. As regards habit, shape and structure of the flowers, the photograph speaks for itself, and as regards colour it is only necessary to add that the female flower is green with an ivory-white lip, and the males lighter green with brown spots. The diversity between the sexes is remarkable—character of inflorescence, and number of flowers, with their shape, size, texture and colour, are so different that nothing short of their production upon the same pseudobulb would convince some people that they belong to the same species. It is probable that the female inflorescence shown weighed more than the male, but this much is certain, one female flower was sent with about half the male inflorescence, carrying 23 flowers, and the two were carefully weighed on a letter balance, when the female flower proved slightly heavier than all the others together.

It is certainly interesting to obtain both the sexes at the outset, because there are several species of which the females are still unknown. In this connection Mr. Fletcher makes the very interesting remark: "Two plants of C. Egertonianum had both forms of flowers on with me this year."

R. A. Rolfe.

THE HYBRIDIST.

In connection with the continuation of the *Orchid Stud-Book*, as already outlined, we have received from the collection of Lt.-Col. G. L. Holford, Westonbirt, Tetbury, flowers of a series of beautiful hybrids raised in the collection, with full particulars of their parentage, &c., and we now place their characters briefly on record. None of them are included in the *Stud-Book*, though a few of them have already been exhibited.

Brassocattleya × Siren.—Raised from Cattleya Skinneri ♀ and Brassavola Digbyana ♂, and received an Award of Merit from the R.H.S. in December, 1907. The flower is rather larger than in C. Skinneri, and bright rose-purple in colour, with a sharply defined pale primrose throat to the lip, which is prettily undulate and neatly fringed. It is probably the darkest Brassavola Digbyana hybrid yet raised.

Brassocattleya × Vesta.—Raised from Brassavola glauca ♀ and Cattleya Percivaliana ♂, and flowered for the first time in February, 1908, but has not been exhibited. It is much like the Brassavola parent in shape, and has rose-purple sepals and petals, while the front of the lip is rich crimson, the disc orange-yellow, becoming lighter at the sides, and the base of the throat reddish.

Læliocattleya × Arbaces.—Raised from Cattleya labiata ♀ and

L.-c. Cassiope ♂, and exhibited at the R.H.S. meeting held on March 9th last. It has broad lilac-rose sepals and petals, and an open, undulate, rich crimson-purple lip, with some white and yellow veining on each side of the throat, which is reddish orange behind. It is a hybrid of great promise, and should develop into a fine thing.

L.-c. × DOROTHY.—Raised from C. Schrœderæ ♀ and L.-c. Doris ♂, and flowered in February, 1908. It was exhibited at the Ghent Quinquennial Show in April following. It has flame-coloured sepals and petals, the latter being very broad, and a nearly entire undulate lip, with a very large deep yellow area in the throat, while the front lobe is rich purple, and the apex of the side lobes somewhat paler.

L.-c. × PIZARRO.—Raised from L. Jongheana ♀ and C. Dowiana aurea ♂, and flowered in March, 1908, when it received an Award of Merit from the R.H.S. It also received a First-class Certificate in February of this year. The sepals and petals are bright purple, and much broader than in the seed parent, while the lip is mostly deep buff-orange, with the much-crisped margin light purple. The disc is veined with dull red. It is a very handsome thing.

L.-c. × ELECTRA.—Raised from C. Trianæ ♀ and L. × Latona ♂, and first flowered in March, 1908. It is said to be producing a great variety in shape, size and colouring. The flower sent has the sepals reddish salmon-colour, the sepals rather more purple, and the front of the lip rich deep purple, rather darker in the throat.

L.-c. × RADIUM.—Raised from L.-c. Antigone ♀ and C. Warscewiczii ♂, and flowered during 1908. The sepals and petals are rather elongated, and bright purple in colour, and the lip deep purple with a paler throat.

L.-c. × TIGRIS.—Raised from L. Cowanii ♀ and L.-c. Dominiana ♂ and flowered in January of this year. The flowers are medium-sized, with deep orange-yellow sepals and petals, and a very undulate nearly entire lip, which is much suffused with claret-colour on the sides, and orange-yellow in the front and along the disc, with a few crimson streaks.

PAPHIOPEDILUM × ALABASTER.—Raised from P. × Godseffianum ♀ and P. × Lasellei (Alcibiades) ♂. The flower is of fine shape and great substance. The dorsal sepal is white, with a green base, and some purple veining up the centre, and again about half way towards the margin; the nearly horizontal petals greenish yellow, with lines of numerous dark purple dots; and the lip greenish. It was exhibited at the R.H.S. meeting held on January 26th last.

P. × BANTAM.—Raised from P. × nitens ♀ and P. × Hera (Euryades) ♂, and not yet exhibited. It shows a good deal of the original P. villosum character, which comes in through both parents. The dorsal sepal is broadly margined with white, and the disc marbled with brown on a greenish

yellow ground; while the petals are greenish yellow, lined with brown on the upper margin, and the lip suffused with brown in front.

P. × BERYL.—Raised from P. × Mrs. Wm. Mostyn ♀ × Beeckmanii ♂, and received an Award of Merit from the R.H.S. in December, 1907. The dorsal sepal is almost that of a small spotted P. Leeanum; the petals are very broad, yellow on the lower half, brown on the upper, and spotted throughout with deep brown, and the lip greenish, mottled with brown in front. This plant illustrates the difficulty of dealing with plants of doubtful parentage, as both the parents are. In the *Stud-Book* the seed parent is considered a form of P. × Evelyn, and the pollen parent of P. × Berkeleyanum (which if correct it must supersede). This would give to P. × Beryl a composition of P. bellatulum 3 parts, Boxallii 2, insigne 1, and Spicerianum 2 (out of eight), and as all four parents can be very clearly traced the fact so far confirms the supposed origin.

Respecting the above hybrids Mr. Alexander remarks: "Each flower has a number attached corresponding with the enclosed tickets, which give full particulars of each cross, as desired. Under this system all new hybrids will in future be forwarded for entry in future instalments of the *Orchid Stud-Book*. It is a great accomplishment, and a useful book that should be recognised by all hybridists. I can plainly see why we waited so long for it. The work involved in its compilation must have been stupendous."

EPIDENDRUM × LEDA.—Raised in the collection of E. Ashworth, Esq., Harefield Hall, Wilmslow, from E. × Sedeni (Wallisio-ciliare) re-crossed with the pollen of E. Wallisii. The sepals and petals are lanceolate, acuminate, bright yellow, and 1¼in. long, while the blade of the lip is broadly elliptic-oblong, apiculate, minutely denticulate, 1in. long by ¾in. broad, and primrose-coloured, with a few purple streaks along the centre, and a deep yellow crest. Although three-fourths derived from E. Wallisii, it shows an approach to E. ciliare in the shape of the petals and sepals, but the lip is entire, though very different from that of E. Wallisii in shape. Mr. Ashworth remarks that it is still a small plant with a stem only five inches high.

ODONTOGLOSSUMS FROM WALTON GRANGE.

A BEAUTIFUL series of Odontoglossums has been sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, being, with one exception, seedlings flowering for the first time. A hybrid from O. sceptrum × triumphans has a light yellow ground, densely spotted and blotched on all the segments with bright red-brown. It is a very attractive flower, and fairly intermediate between the two parents. Another of the seedlings from O. cirrhosum × Pescatorei has reproduced the character of the seed-parent very closely, having narrow, very acuminate white segments,

prettily blotched with dark purple. This cross might be repeated, to see whether the Pescatorei influence would not come out better another time. O. crispum × Vuylstekei has a white ground colour, with very large reddish claret blotches on all the segments, while the white margin and tips, and a pure white area at the base of each segment, gives the flower a very bright and attractive appearance. A seedling O. × amabile, has broad, very acuminate cream-white segments, with many small chestnut red spots on the petals, larger blotches on the sepals, and a crescent-shaped blotch in front of the yellow crest of the lip. A seedling of O. × waltonense has a light yellow ground colour, with several chestnut brown spots on the sepals, and a large blotch on the lip. A seedling of O. crispum has good broad rosy sepals and petals, with a red-purple blotch in the centre of each, those on the petals being crescent-shaped. The remaining one is an inflorescence of O. odoratum, having bright yellow, very acuminate segments, much spotted with red brown. It is a Venezuelan species, and is quite distinct from O. gloriosum, which has sometimes been confused with it, under the same name.

CALENDAR OF OPERATIONS FOR APRIL.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

CATTLEYAS AND LÆLIAS.—Many of the early-flowering varieties will need repotting or top-dressing this month, and this should be seen to as soon as they commence to root, for, if left too long, many of the young roots will be broken, and growth will be checked. Great care should be taken in turning the plants out of the pots, and in most cases the pots will have to be smashed, and the pieces carefully removed from the roots. The old material must be carefully picked out, and if at all sour the roots will be better washed in tepid water. In repotting good sound fern or Osmunda fibre should be used, and this should be carefully worked in between the roots, and not just crushed down in the pots. If the plants are well rooted there should be enough roots to fill the pots when spread out. Pot firmly, and keep the material about half an inch below the rim of the pots. Plants that have not been disturbed for some time will have several old bulbs which are of no use to the plants, and these should be removed, and can be used for propagating. The plants must be firmly staked or made fast in some way, as if allowed to move about the young roots soon get broken, and then they will be more of an eyesore than a success. Back bulbs which are required for propagating must, of course, have a good, sound eye, and thus should be removed with a piece of the rhizome attached. They should be placed in pots filled with crocks and topped with a little moss, and placed in a frame where a good heat can be kept.

In making up specimen plants the back bulbs should also be removed,

and three leading bulbs left. The pieces should be of about equal strength if good results are expected, and the smaller-sized bulbs should be potted in a separate pot, and will soon make as fine specimens as the larger ones, and can then be dropped into a larger pot without disturbing the ball of compost. In making up specimen pots the young bulb should be turned towards the centre of the pot, not outwards, or the first bulb it makes will be over the side of the pot, and then the roots get so easily damaged, and the need of repotting again throws the plants back. Each plant must be firmly potted and staked so that it does not move about when being syringed or staged. When the plants are out of the pots, and all the old compost is picked off, they should be examined before being repotted, to see that no scale is on the rhizomes. The skin can then be removed, and the rhizome thoroughly cleansed, for if scale is left on the plants it soon attacks the new growths. Plants that only need top-dressing should have the old material carefully picked out, and replaced with fresh Osmunda fibre and a little moss. These plants should be staged separately from newly-potted plants, so that no mistakes arise in watering. Stage them so that the syringe can be used between the pots, either in straight lines or angles, whichever the grower prefers. If the plants are sorted out this can easily be done by staging pots and plants in their sizes, and syringing both overhead and between the pots. This is far better than watering so much, and the plants soon re-establish themselves, and there is no danger of getting the new compost sodden.

A good compost can be made with Osmunda fibre or Fern fibre three parts, oak leaves (*not leaf-mould*) one part, and just a little moss, with plenty of crushed crocks, and all mixed well together. If the material feels dry it should be well damped before use. A good plan is to prepare compost several days before it is wanted, and damp it to get it into a nice condition for using. Fibre of any kind when used dry needs a lot of water to wet it through, and newly-potted plants do not like sodden material, as they have not sufficient root action to absorb the moisture from the compost. When it is used in a just damp condition there is sufficient moisture to keep the plants going for some time with the aid of the syringe either overhead or between the pots.

Chysis are pushing their flower buds, and should be given a little more water till the flowers are developed. As the plants flower from the young growths they must not be potted until the flowers are over, then they should be attended to, and as they make very tender roots delay in potting or top-dressing will injure instead of benefiting the plants. They should be potted in a compost of good fibrous loam and peat in equal proportions, adding plenty of crushed crock and charcoal. Suspend them near the glass in the Cattleya house, and give plenty of water while the roots are active.

The tender growths are liable to attacks of thrip, and should be sprayed occasionally. Care must be taken not to let the insecticide lodge in the young growths, as it will cause them to rot off if left there for any length of time. They are very little trouble to grow, and the flowers are curious and give beautiful contrasts in colour.

CATASETUMS need similar treatment, and should be examined as soon as the flowers are past. Their curious flowers always attract attention, and the powerful scent is admired by some growers. Cattleya-house treatment will suit them, and a compost similar to that advised for Chysis. The light and air of the Cattleya house ripens the bulbs well, and they will produce good flowers, but if grown soft they will not produce flowers, and the leaves will spot.

ANGULOAS, or Cradle Orchids, as they are commonly called, owing to the peculiar shape of the flowers, are very curious, and always attract a good deal of attention, though one does not often see them exhibited now. The more showy hybrids seem to be replacing many of the old species, yet in their way many of the latter are more beautiful. A showy flower one sees all at once, but with many Orchids the oftener one looks at them the more beautiful they seem. These should also be grown in the Cattleya house, in a nice sunny position. Care must be taken not to let water lodge in the growths when they are just starting, or they soon damp off. They like plenty of syringing when further developed, and the water cannot then lodge in the growths. A compost of loam and peat suits these, and the material should be kept below the rim of the pot, as they like an ample supply of water when in full growth, and plenty of sunshine.

Cycnoches, or Swan Orchids, are also very interesting, and the flowers give off a powerful perfume. They are interesting flowers to most people, whether Orchid growers or not, as the formation of the flower and the resemblance of the column to a swan's neck always arouses interest. They require Cattleya house treatment, and if suspended near the glass will give abundance of flowers. They should be potted as soon as they commence to grow, and not after they flower, for the flowers appear after the bulbs are made, and then the plants rest for the winter. Plump back bulbs should not be removed, as they will often push out spikes, although to look at they appear useless. These also like a peat and loam compost, and plenty of water and syringing in their growing season.

CYPRIPEDIUMS which were potted early will be getting nicely rooted now, and should be given an ample supply of water and well syringed overhead on every fine day. Thrip must be kept in check by fumigating or spraying occasionally with insecticide. The C. bellatulum class will need a little more water now they are pushing up their buds. This is a most difficult class of Cypripede to get on with, but very satisfactory when once

the right place is found for them, and a little care taken with watering in the winter months. They should not be syringed so heavily or watered as much as other Cypripedes, nor do they need so heavy a shading. A similar shading to that used for Cattleyas will suit them, and plenty of air during the summer months.

Damping down must be done frequently, or thrip will soon become a nuisance; it also helps to keep the pots from drying so rapidly. Walls and pathways should be thoroughly saturated during the hot weather.

Ventilation.—Houses can be more freely ventilated after March is out, as we do not get such keen winds, but care must be taken not to chill the houses. Commence early in the morning with a little air, and not leave the houses shut up until they get hot and then put a lot on, as a sudden check is more harmful than too much heat.

Temperatures should be kept as even as possible at night, allowing enough fire heat to maintain the proper figures. These should run about as follows at night: Stove or East Indian House, 70°; Cattleya house, 65°; Intermediate house, 60°; Odontoglossum house, 55°. Allow from 5° to 10° rise during the day time, the latter when sun heat is available, but at other times the former will suffice.

LEAF-SPOT OF ODONTOGLOSSUM UROSKINNERI.

An interesting and important account of the well-known spot-disease of Odontoglossum Uroskinneri, by Mr. M. C. Potter, M.A., F.L.S., has just appeared (*Gard. Chron.*, 1909, i. pp. 145, 146, fig. 62-65). After describing the appearance of the affected leaf, and its microscopical structure, Mr. Potter remarks: "In the leaf-spot of Odontoglossum there was no sign of any fungus to be found. But special staining and examination under a high power of the microscope revealed the presence of numerous bacteria. These occupied notably the cells surrounding the tissues in the initial stages of gum formation, and could be seen almost filling the cavity of the cells. Although the subject requires further investigation, it is probable that these bacteria have some destructive action upon the protoplasts, and that from this action results the escape of the cell contents, and their conversion into the gummy substance, filling up the intercellular spaces. . . .

"Attempts have been made to induce the disease upon healthy plants by inoculation with bacteria isolated from the diseased leaves, but have been unsuccessful. It must be remembered, however, that infection is often critical and uncertain, and depends upon conditions sometimes difficult to approximate. It has been noted that the spot is more prevalent when the plant is grown in a very moist or almost saturated atmosphere, and in such conditions it is very liable to spread. In a dry atmosphere, on the

contrary, the spot does not increase, and if a plant affected with it is removed to a drier atmosphere, the spot already developed is checked. . . .

"Clearly bacteria play a considerable part in the development of the disease and the formation of the gum, but unsuitable cultural conditions are also largely responsible for its prevalence in the first place. This Orchid, in its native habitat, Guatemala, exists at a high elevation, in cool, shady places. Cultivation in too moist and, possibly, too heated an atmosphere produces conditions which are inimical to the health of the plant."

The materials investigated were from the collection of Mr. Norman C. Cookson, who also communicated the observations upon the effect produced by a change in cultural conditions.

MR. JAMES DOUGLAS, V.M.H.—An interesting biography of this veteran horticulturist appears in the *Journal of Horticulture* for March 4th, and among other things it points out that Orchid growing is included among his many activities. "Many of his older friends can also recollect his specimen Orchids. The one he appears to have been proudest of was a magnificent plant of Miltonia vexillaria with 360 flowers. This was figured in some of the gardening papers, the *Journal of Horticulture* among them. It was purchased in a thumb pot, so that Mr. Douglas deserved all the credit due to him as the cultivator. In several successive seasons he annexed the £20 prize for a selection of sixteen Orchids: and won several prizes for Orchids at the opening of the Royal Aquarium. Yet his only houses were one for Cattleyas, 30ft. long, and another for cool Orchids, 15ft. in length. It is known to very few indeed that through the instrumentality of Mr. Douglas, who was then on the Council of the Royal Horticultural Society, the foundation of the Orchid Committee in March, 1889, was due. It had been brought to his notice that great dissatisfaction prevailed at the manner in which certificates were awarded to Orchids by the Floral Committee, who had hitherto adjudged them. It was said, with good reason, that many men upon that body were voting against Orchids the precise merit or value of which they were not in a position to judge. Mr. Douglas urged the importance of a change, and suggested an Orchid Committee; and the other members of the Council concurring, the new body was duly instituted. Mr. Douglas became one of its first members. He continued upon this Committee until Richard Dean's death caused a gap in the ranks of the Floral Committee, and as it was thought advisable to add a florist of long experience, an invitation was extended to our veteran, who accepted. As he is also a member of the Scientific Committee, he has sat on every committee except that of the Narcissus and Tulip, which perhaps constitutes a record." Lælia × Briseis and Læliocattleya × Apollonia are also included among plants submitted and certificated in his name.

ODONTIODA BRADSHAWIÆ, COOKSON'S VAR.

At the meeting of the Royal Horticultural Society held on March 9th last, a First-class Certificate was awarded to Odontioda × Bradshawiæ Cookson's var., a very handsome hybrid raised in the collection of Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman). A photograph and flower have been forwarded by Mr. Cookson, who remarks: "The photo shows the exact size of the flowers when taken, and was carefully checked with callipers. The cross is a good typical O. crispum ♀ × Cochlioda Nœtzliana ♂. It is curious that the reverse cross, with O. crispum Graireanum as the pollen parent, should give very much smaller flowers,

Fig. 10. Odontioda Bradshawiæ, Cookson's var.

with no spotting or blotching, and showing much of the seed-bearing parent's influence, whereas with a good-sized, well-shaped, typical crispum (unspotted and unblotched) as seed-parent, a fine crispum-shaped Odontioda should be the result." Mr. Chapman writes: "This is the only occasion that we have been fortunate enough to get a seed vessel on any Odontoglossum, species or hybrid, but with the Cochlioda as seed-parent there is little difficulty in getting seed. In fact it rarely fails when intercrossed with Odontoglossum or Oncidium. The plant flowered about three years from sowing the seed, but O. × Bradshawiæ Oakwood var. (C. Nœtzliana

♀ × O. crispum Graireanum ♂), was four years old when it flowered. This is a purely scarlet flower, less than half the size of the other. I am giving you this information because the impression has got about that O. c. Graireanum is one parent of the certificated plant. The first flower opened on February 23rd."

The photograph is reproduced exact size, and shows the remarkable character of the variety. The greater part of the flower is taken up with the cinnabar-scarlet blotches, but the tips and margins of the sepals and petals are light purple, the two colours being seperated by a narrow irregular band of light yellow. There are also a few light yellow markings at the base of the petals. The crest of the lip is bright yellow, and the rest of the ground colour paler, while the markings are cinnabar-scarlet. The back of the column and the distinctly-toothed wings are brownish-red. It is a very great horticultural acquisition, and should encourage further experiments.

SOCIETIES.

ROYAL HORTICULTURAL.

THERE was a remarkably fine display of Orchids at the Royal Horticultural Hall, Vincent Square, Westminster, on March 9th last, and the awards consisted of one Gold and five other Medals, five First-class Certificates, two Cultural Commendations, two Awards of Merit, and one Botanical Certificate.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a remarkably fine group, to which the Society's Gold Medal was awarded. It consisted largely of hybrid Dendrobiums raised in the collection, Phaiocalanthes, Spathoglottis, Cattleyas, Odontoglossums, and numerous interesting rarities, with a very good clump of Epidendrum × O'Brienianum and E. × Boundii, brightening up the centre. Among noteworthy forms may be mentioned the beautiful Dendrobium × Lady Colman, D. × Duchess of Albany, a pretty blush white form, D. × Purity, white with a dark purple disc, D. × sulphureum, a pretty yellow form, D. × Goldfinch, D. × Thwaitesiæ, D. × chessingtonense Gatton Park var., D. × Cybele Gatton Park var., a cluster of the chaste D. nobile virginale, D. n. Cooksonianum, the rare D. tetragonum, the beautiful Cymbidium × Lady Colman, a yellow form of Sophronitis grandiflora, Bulbophyllum comosum, Epidendrum polybulbon, and numerous other interesting things, the whole forming a most brilliant display, and affording a fine example of good culture.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), received a First-class Certificate for Odontioda Bradshawiæ Cookson's var. (Odontoglossum crispum (typical) ♀ × Cochlioda Nœtzliana ♂), a

magnificent hybrid, having the typical crispum shape, with the greater part of the sepals and petals cinnabar-scarlet, and the tips and margins of the segments cream-white, freckled with rose, the lip blotched and marked with red on a cream white ground, and the crest yellow. A second form, called Oakwood var., had the flower almost uniform reddish scarlet, with a yellow crest. He also sent Odontoglossum × percultum Oakwood var., a fine white, beautifully blotched with purple.

F. M. Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), received a First-class Certificate for Cattleya Trianæ Grand Monarch, a very large and finely shaped form, having rosy-lilac sepals and petals, and the front of the lip purple-crimson, with an orange throat, and some dark lines at the base.

R. G. Thwaites, Esq., Chessington, Streatham Hill (gr. Mr. Black), received a First-class Certificate for Sophrocattleya Thwaitesii (S. grandiflora × C. Mendelii), a very beautiful hybrid, most like the Cattleya in shape, and having the sepals and petals carmine-red, and the lip yellow, with a bright red margin and apex.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), received an Award of Merit for Odontoglossum × Wiganianum, a pretty white flower with clusters of dark red-purple blotches in the centre of the sepals and petals, and the crest of the lip yellow, with some red-brown markings. He also sent the finely blotched O. crispum Carmania.

J. Foster Alcock, Esq., Exhims, Northchurch, sent Cypripedium × W. Hopkins, a distinct and striking form.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Cattleya Schrœderæ The Prince, a very pretty variety, and Odontioda Goodsoniæ, a very beautiful hybrid of doubtful origin. It had a large rosy-red flower, with some irregular cream-coloured markings on the upper part of the segments, and the crest of the lip yellow, with some red markings in front.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), sent Læliocattleya Arbaces (C labiata × L.-c. Cassiope), a very handsome hybrid, with rosy lilac sepals and petals of good substance, and the lip rich rose-purple, and very much crisped in front.

Walter Cobb, Esq., Rusper (gr. Mr. Salter), received a Cultural Commendation for a magnificent plant of Cœlogyne cristata alba, covered with flowers.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), received a Cultural Commendation for a sturdy plant of Cymbidium insigne, bearing three fine spikes.

Messrs. Charlesworth & Co., Haywards Heath, staged an excellent group of choice things, which gained a Silver-gilt Flora Medal. It contained a brilliant series of Odontoglossum × armainvillierense, and other good forms,

the brilliant Odontioda Craveniæ and O. Bradshawiæ, the pretty yellow Læliocattleya Katie, L.-c. Sheila, Cattleya × Empress Frederick, Brassocattleya Veitchii Queen Alexandra, and other fine things. A First-class Certificate was given to Brassocattleya Cliftoni magnifica (B.-c. Veitchii × C. × Trianæ Uplands var.), a very large and beautiful form, having the segments silvery white, tinged with rose, and the broad, well-fringed lip ruby-crimson in front. An Award of Merit was given to "Brasso-Lælio-Cattleya" Cooksoni (Brassolælia Gratrixiæ × C. Dowiana aurea), a very pretty hybrid, having yellow flowers tinged and veined with copper-colour, and the lip fringed.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a very fine group, containing a good series of Cattleya Trianæ, one very beautiful white form being called Queen Alexandra, Zygonisia Sanderi (Aganisia lepida × Zygopetalum ?), a very pretty hybrid having cream white flowers heavily blotched with violet, and many good Odontoglossums, the more noteworthy being O. × Hebe (Lindleyanum × Rolfeæ), O. × Helenus (harvengtense × Coradinei), having primrose-yellow flowers densely spotted with cinnamon-brown, O. × Solon (Adrianæ × ardentissimum), a fine white, heavily blotched with purple, O. × Thalia (Andersonianum × excellens), a bright canary-yellow flower, regularly spotted with red-brown, and O. × Verona (Adrianæ × Vuylstekei), a pretty cream-white flower, well spotted with chestnut-red. Among imported plants was a fine light yellow flower most like O. triumphans, but with a broad, fringed lip, having a large chestnut blotch in front of the crest. A First-class Certificate was given to Cattleya Schrœderæ Mrs. F. Sander, a large and beautiful white variety, and a Botanical Certificate to Chytroglossa Marileoniæ, a pretty Brazilian Orchid whose history was given at page 159 of our last volume.

Messrs. Hugh Low & Co., Enfield, received a Silver Flora Medal for a fine group, including Dendrobium nobile virginale and other Dendrobiums, varieties of Cattleya × Trianæ, Aërides Vandarum, Cymbidium × Holfordianum, C. × Wiganianum, Odontoglossum crispum Queen Victoria, Cypripedium × auriferum, &c.

Messrs. Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group of Cattleya Trianæ, Odontoglossum Cervantesii, and other good Odontoglossums, Epiphronitis Veitchii, Aërides Vandarum, Sophronitis grandiflora, Cypripedium × Milo Westonbirt var., and others.

M. Maurice Mertens, Mont St. Amand, Ghent, received a Silver Banksian Medal for a good group of hybrid Odontoglossums, Cattleyas, and Cypripediums.

Messrs. Armstrong & Brown, Tunbridge Wells, sent a good group of Odontoglossums, Cymbidium eburneum, C. × Woodhamsianum. Lælia

Jongheana, Cypripedium callosum Sanderæ, C. glaucophyllum, C. × aureum Surprise, and others.

Mr. W. P. Horton, Cravenhurst, Seaford, sent a good group of Dendrobiums, Odontoglossums, and Cypripediums.

Mr. H. A. Inness, Croft Spa, Yorks, sent a good Lycaste Skinneri alba, a fine dark Masdevallia Chimæra, and two light forms of Cattleya Trianæ.

Messrs. James Veitch & Sons, Chelsea, sent a very good group, including varieties of Cattleya Trianæ, Læliocattleya callistoglossa, Brassocattleya Thorntoni, Odontoglossum crispum, O. Pescatorei, O. triumphans, and some good examples of Cypripedium × Countess of Carnarvon.

AT the meeting held on March 23rd there was a fine display of Orchids, though not much in the way of novelty, and the awards consisted of ten Medals, three Awards of Merit, and two Cultural Commendations.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), received a Silver Flora Medal for a choice group, including Cattleya Trianæ Empress of India, a beautiful white form with the front of the lip mauve-purple, Læliocattleya Tarquinius (L.-c. callistoglossa × C. Schilleriana), a large and brilliantly-coloured hybrid, L.-c. Tigris (L. Cowanii × L.-c. Dominiana), and various other hybrids. There were also two remarkable Cymbidiums, C. × eburneo-Lowianum, with 32 spikes and 115 flowers, the best of them bearing seven, and C. × Lowio-eburneum Westonbirt var., with 19 spikes and 91 flowers, and for these Cultural Commendations were given to Mr. Alexander. Awards of Merit were given to Dendrobium × Schneiderianum Westonbirt var. (aureum × Findlayanum), a very beautiful variety, most like D. Findlayanum in shape, the colour white, with rosy tips to the segments, and the disc of the lip deep orange-yellow, and to Brassocattleya Digbyano-Mendelii perfecta, a model flower, of delicate blush-pink tint, with the disc of the lip cowslip yellow.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a fine group of Cattleyas, Dendrobiums, Odontoglossums, and others, noteworthy among them being a pretty albino form of Lælia Jongheana, called Nellie Blanche, white, with the disc of the lip orange-coloured, a form of Odontioda Goodsoniæ, with the flowers uniformly red, Cattleya Sohrœderæ The Prince, Odontoglossum crispum Ernest Henry, white, with violet-purple blotches, and other good things.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), received an Award of Merit for "Sophro-Lælio-Cattleya Olive" (Sophro-lælia Psyche × Cattleya × Enid), a promising hybrid bearing a three-flowered inflorescence, the flowers being reddish-mauve, with deep yellow markings on the lip. He also sent the brilliant Sophrolælia Psyche for comparison.

J. Foster Alcock, Esq., Northchurch, sent a hybrid Cypripedium of doubtful parentage, having greenish ground colour, blotched with dark purple.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent a fine form of Odontoglossum × Lambeauianum.

Mrs. Haywood, Woodhatch, Reigate (gr. Mr. Bassett), sent two hybrid Dendrobiums.

Mrs. Temple, Leyswood, Groombridge (gr. Mr. Bristow), sent two light-coloured forms of Lycaste Skinneri.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver-gilt Medal for a very beautiful group, consisting largely of Dendrobiums and Odontoglossums, the varieties of O. crispum, both white and spotted, all being of excellent quality, and remarkably well grown. A seedling from O. c. Franz Masereel had deep violet-purple markings, and was very beautiful. Other noteworthy things were examples of O. Pescatorei, O. Hallii, O. × Ruckerianum Pitt's var., a beautiful variety of O. crispum of the Lady Jane type, with some fine examples of O. Edwardii, and many others.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a choice group, including four beautiful examples of Angræcum modestum, with graceful pendulous racemes of white flowers, the handsome Cœlogyne Sanderæ, Phalænopsis × Lady Rothschild (intermedia × Sanderiana), a very pretty hybrid, having delicate blush-white flowers, Maxillaria præstans, Læliocattleya Hypatia and others, a good plant of Phragmopedilum caudatum Lindenii, bearing six of its remarkable flowers, in which the lip is represented by an ordinary petal, Odontoglossum × Thompsonianum Charlesworth's var. (crispum × Edwardii), a very fine form with claret-purple flowers tipped with lilac, Brassocattleya Digbyano-Schrœderæ Bradshawiæ, a beautiful white form, and other handsome hybrids.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a fine group, including numerous well-grown Dendrobiums, some fine forms of Cattleya Trianæ and Schrœderæ, a good C. Mendelii, Epiphronitis Veitchii, some good Sophronitis grandiflora, the handsome Cymbidium insigne, the rare Bulbophyllum tremulum, with a hairy lip, approaching that of B. barbigerum, Notylia bipartita, Odontoglossums, Brassocattleyas, &c.

Messrs. Moore, Ltd., Rawdon, Leeds, also received a Silver Flora Medal for a good group of Dendrobiums, &c., including some very pretty hybrids one called D. × Austin being very large and richly coloured. It also included the plant known as D. Donnesiæ, like a large-flowered form of D. infundibulum.

Mr. A. W. Jensen, Lindfield, Haywards Heath, received a Silver

Banksian Medal for a good group of Cattleya Schrœderæ, Odontoglossum crispum, and others.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, received a Silver Banksian Medal for a choice group, including the dark violet Bollea cœlestis, Cymbidium insigne, C. × Holfordianum, Odontoglossum cordatum, the rare Bulbophyllum miniatum, with feather-like lip, some good Sophronitis grandiflora, Dendrobiums, Cypripediums, &c.

M. Maurice Mertens, Mont-St.-Amand, Ghent, received a Silver Banksian Medal for a group of hybrid Odontoglossums, with two plants of the chaste white Cattleya × Suzanne Hye de Crom.

Messrs. Sander & Sons, St. Albans, received a Silver Banksian Medal for an interesting and pretty group, including some good Dendrobium crassinode, D. c. album, Cymbidium Schrœderianum, Phragmopedilum caudatum Lindenii, Eria monostachya, a rare Javan species with whitish flowers, E. densiflora, Polystachya pubescens, Hexadesmia fasciculata, and various other botanical rarities.

Messrs. A. J. Keeling & Sons, Bradford, sent a good Odontoglossum apterum (nebulosum), and examples of glass tubes used for storing Orchid pollen.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

ONLY a moderate number of exhibits were staged at the meeting held on March 4th. The Committee sat as follows: Messrs. E. Ashworth (Chairman), Thorp, Ward, Cowan, Keeling, Warburton, Holmes, Upjohn, Ashton, and Weathers (Sec.).

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged an excellent group of Odontoglossums, one of which, called O. × Beaute-Celeste var. "Oxo," gained an Award of Merit. I noted also many varieties of O. crispum, white and rosy types, O. × Phœbe, O. × Adrianæ, O. gloriosum, O. Hunnewellianum, O. × Rolfeæ, also several fine plants of Dendrobium Wardianum, Oncidium olivaceum, &c. The group was awarded a Silver-gilt Medal.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged an interesting and varied group which, being divided for "Cup" purposes, gained two Silver Medals and one Bronze Medal. A fine Cypripedium × Euryades var. King Edward VII., gained a First-class Certificate. Other noteworthy plants in the group were C. × aureum Hyeanum, C. × Minos Youngii, C. × Leeanum Hercules, C. × Beeckmanii, Phragmopedilum × grande atratum. Leliocattleya × Captain Percy Scott, Odontoglossum × harvengtense, O. crispum, and various Dendrobiums.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), sent a very pretty group, chiefly Odontoglossums, which gained two Silver Medals.

I noted Odontoglossum × Japonais, O. × Rolfeæ, O. crispum, O. triumphans, Odontioda Bradshawiæ, &c., with a few Dendrobiums, including D. Wardianum album, D. nobile Ballianum, Cymbidium concolor, Lycaste Skinneri alba, Cypripedium × Minos Youngii, C. × Titian, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a good group of Cattleyas of good quality, many varieties of C. Trianæ, C. Schrœderæ, &c. (Silver Medal). Cattleya Trianæ var. Lowiæ, a richly-coloured flower, gained an Award of Merit.

J. Stott, Esq., Radcliffe, sent a small group of Cypripediums, mostly C. villosum and C. × Lathamianum, for which he received a Bronze Medal.

Ed. Rogerson, Esq., Oakdene, Didsbury, sent a good plant of Cypripedium × Beeckmanii.

H. Arthur, Esq., Blackburn, sent Lælia anceps var. Schrœderiana.

Messrs. Moore & Co., Rawdon, Leeds, staged an excellent miscellaneous group of Cypripediums, Odontoglossums, &c. O. × Lawrenceanum Distinction gained an Award of Merit. I noted a distinct O. × Rolfeæ, a good O. × Adrianæ, O. × altum, O. × percultum, Dendrobium × Wiganiæ xanthochilum, Cypripedium × Maudiæ, C. × Olga Bagshaw, &c. (Silver-gilt Medal).

Messrs. Keeling & Sons, Westgate Hill, Bradford, sent a small but interesting group, including Dendrobium × Wiganiæ, Scaphyglottis Behrii, Pleurothallis ornatus, and many others of botanical interest.

Mr. W. Shackleton, Great Horton, Bradford, sent several varieties of Odontoglossum crispum, Cypripedium × Thompsoni, C. × Charlesianum, C. insigne Sanderianum, C. i. King Edward, &c. (Bronze Medal).

Mr. J. Birchenall, Alderley Edge, sent an Odontoglossum triumphans with rich dark markings.

Mr. J. Robson, Altrincham, gained Awards of Merit for Odontoglossum crispum Supreme and Cypripedium × Actæus Robson's var. He also sent Odontoglossum × armainvillierense xanthotes.

At the meeting held on March 18th, the room was well filled with exhibits, several of the groups being specially interesting. The Committee present were Messrs. E. Ashworth (Chairman), Thorp, Cowan, Ward, Warburton, Sander, Upjohn, Shill, Keeling, Holmes, Collier, Ashton, Parker, and Weathers (Sec.).

Sir Jeremiah Colman, Bart, Gatton Park, Reigate (gr. Mr. Collier), sent about fifty plants of very choice varieties of Dendrobiums. The remarkably fine D. × Lady Colman, a flower of fine form and size, is probably one of the best hybrids yet raised, while for colour effect D. × Sybil is hard to displace. I noted several varieties of D. × Thwaitesiæ, also D. × chessingtonense, D. × Wiganiæ, D. × Cybele, Gatton Park var., a very fine, D. ×

Rubens, D. × Eleanor, and many others. All were well grown and flowered, and attracted much attention. A special Vote of Thanks was awarded by the Committee.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a splendid group of miscellaneous plants, including some excellently-grown Lycaste Skinneri, ranging from deep crimson to pure white, one bulb bearing sixteen flowers and buds. I noted also Oncidium Weltoni album and the ordinary form, several well-flowered plants of Cypripedium Rothschildianum, C. villosum, C. × Maudiæ, fine specimen pans of Lælia Jongheana, &c. The group was awarded a special Vote of Thanks.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a fine group, which contained some good Cypripediums, Cattleyas, Odontoglossums, &c. O. crispum "Lucie-Marie," O. c. "Hofer," and O. × armainvillierense var. Vanguard, all gained First-class Certificates. The plants were only small, and carried one flower each, which was of excellent shape and size, the blotches being very solid and dark. O. c. Brutus received an Award of Merit. Cattleya Schrœderæ var. "Ulysses" and C. Percivaliana, "Little Gem," each gained a First-class Certificate. A good plant of Dendrobium Bancroftianum, bearing several trusses of white flowers, gained a First-class Botanical Certificate. Included in the group were Cypripediums × Minos Youngii, × Maudiæ, × Beeckmanii, × Euryades, &c., several well-flowered Odontoglossum crispum, &c. Two Silver-gilt Medals were awarded.

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float) sent a fine group of seasonable plants, which gained a Silver Medal. I noted Odontoglossum bictoniense and O. Edwardii, both well-flowered, a beautiful little pan of the rare O. Œrstedii, carrying a dozen flowers, Odontioda heatonensis, Dendrobium dixanthum, D. Wardianum album, Læliocattleya × Dominiana, and many others.

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), sent a bright group of Odontoglossums. O. crispum Meteor received an Award of Merit. Very effective for decorative work are O. × Elaine and O. × Phœbe. I noted strong plants of O. Hallii, O. luteopurpureum, O. × Adrianæ, O. crispum, O. Pescatorei, O. × Beaute-Celeste, &c. (Silver Medal).

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a group of Cattleyas, which included varieties of C. Schrœderæ, C. Trianæ, and Lælia hybrids, and gained a Silver Medal. C. Trianæ Lucifer and C. T. Fascinator gained Awards of Merit.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), sent a group of Cypripediums, which gained a Silver Medal. Cypripedium × Alcibiades var. Illustrious, a flower with a very broad dorsal sepal, received a First-class Certificate. I noted the fine C. × Rajah, C. × Victor, C. × Venus, Rann Lea var., C. × Leonora, C. × Euryades New Hall Hey var., &c.

H. Arthur, Esq., Blackburn, sent a small group, which was awarded a Bronze Medal. The chief things were Lycaste Skinneri alba, Odontoglossums, Cypripediums, &c.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), sent Odontoglossum × Japonais var. Fletcheri and O. × J. ashlandense, both gaining Awards of Merit.

Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall), received an Award of Merit for Cypripedium × apiculatum var. atratum.

J. Leemann, Esq., West Bank House, Heaton Mersey (gr. Mr. Smith), sent the fine Cattleya Trianæ West Bank House var., a flower of fine proportion and highly coloured.

Messrs. Low & Co., Enfield, sent a nice group, in which I noted a richly-coloured form of Cymbidium insigne (Sanderi), C. × Holfordianum, Dendrobium crassinode album, D. nobile virginale, D. × Wiganianum, and several varieties of Cypripedium × aureum (Silver Medal).

Messrs. Cypher & Sons, Cheltenham, staged a pretty and effective group, in which I noted well-flowered plants of Odontoglossum × Wilckeanum, O. sceptrum, O. luteopurpureum, Dendrobium nobile Ballianum, Dendrochilum glumaceum, Sophronitis grandiflora, &c. (Silver Medal).

Messrs. Keeling & Sons, Westgate Hill, Bradford, staged a quaint and botanically interesting group, including Cypripedium Dayanum, C. Bullenianum, C. glaucophyllum, C. venustum, Masdevallia Shuttleworthii, M. Arminii, &c.

Mr. Wm. Bolton, Wilderspool, Warrington, sent three good varieties of Cattleya Trianæ.

Mr. W. Shackleton, Gt. Horton, Bradford, staged a group of Cypripediums, which gained a Bronze Medal.

Mr. J. Robson, Altrincham, sent a few choice plants, including a fine hybrid Odontoglossum from O. crispum Graireanum × Rolfeæ, and another from O. c. Madouxianum × Rolfeæ, O. × ardentissimum albens, and Cypripedium × Leoniæ Highfield var. (Vote of Thanks).

Mr. J. Birchenall, Alderley Edge, sent the rare and quaint Uropedium Lindenii, which was awarded a First-class Botanical Certificate.

H. THORP.

ORCHID CULTURE.—On Friday, the 12th inst., Mr. W. P. Bound, late of Gatton Park, Reigate, lectured before the Beckenham Horticultural Society, on "Orchid Culture." A very full audience eagerly and attentively followed the lecturer through a splendid extempore discourse, lasting for upwards of an hour. If one thing more than another was insisted on, it was the constant propagation of Orchids, so that at all times one had youth and vigour. It was pointed out how futile it was to expect fine spikes

of flower of Phloxes or Delphiniums from old plants, with their centres all decayed; and Mr. Bound reasoned that in a similar way to taking off the outside wherewith to form vigorous plants, so, by taking off the "leads" of Cattleyas and Odontoglossums at the proper time, (*i.e.*, when the young growth is well started), with one or two back bulbs attached, they soon make vigorous plants under good management. The lecturer has weaned himself from using moss in the potting compost for Cattleyas, and now uses and recommends fibre and crocks only, with a bit of moss on top. Mr. Bound showed a sample of this fibre, which seemed exceedingly tough and lasting. A very hearty vote of thanks was accorded both lecturer and chairman.—T. C., in *Journal of Horticulture.*

ORCHIDS IN SEASON.

Two beautiful Orchids are sent from the collection of G. Hamilton Smith, Esq., Finchley. Lycaste Skinneri var. Mrs. G. Hamilton Smith is a very fine form, having very broad elliptical sepals and petals, the former being nearly 2¼ inches across. The sepals are blush pink, and the petals rosy purple, while the lip is marked with crimson on a cream-coloured ground. Mr. Coningsby remarks that the plant was imported about eighteen months ago, and is carrying three flowers and two buds, and is by far the best form, both for size and shape, that they have yet flowered. The other is a very beautiful form of Odontoglossum × Andersonianum, with pure white ground colour, and large dark purple blotches. Both are plants to be taken care of.

The three upper flowers of a light yellow, well-spotted form of Odontoglossum × Andersonianum is sent from the collection of W. R. St. Quintin, Esq., Scampston Hall, Rillington, to show the change of colour effected by fertilisation, one flower having a bright yellow ground colour. Mr. Puddle remarks that two days after opening he fertilised a flower with the pollen of O. nebulosum, the result being to change the flower to a deeper yellow, and the effect on a spike of seventeen flowers was very remarkable, as all remained fresh. We have noticed the same effect on other plants of O. × Andersonianum when a flower has been accidentally fertilised by some insect, and it is independent of the nature of the pollen used. Fertilisation seems to have the effect of intensifying the yellow colour lent to the hybrid by the O. gloriosum parent.

Two pretty Læliocattleyas are sent from the collection of E. F. Clarke, Esq., Teignmouth. A seedling from Lælia Cowanii × Cattleya Trianæ is a form of Læliocattleya Oriens, though it differs from the original in having a deep red-purple front lobe to the prettily undulate lip, while the side lobes are also margined with a lighter shade, and the disc deep yellow. The sepals and petals are light yellow, with a slight buff tinge. The seed

was sown in June, 1903. The other is a form of L.-c. Myra, and was purchased from Messrs. Charlesworth, in 1900, as a small seedling, with the parentage C. Trianæ formosa × L. flava. It has light yellow flowers, with the front lobe of the lip reddish-maroon, much crisped, and margined with light yellow.

Dendrobium × Ainsworthii var. Mary McCartney is a beautiful white variety, with a rich purple-maroon, slightly feathered disc to the lip. A flower has been sent from the collection of J. McCartney, Esq., Hey House, Bolton, by Mr. Holmes, who remarks that it was raised from D. nobile Cypheri × D. heterocarpum philippinense. Lælia × Marjorie is a pretty little hybrid from the same collection, which is said to have been raised from L. præstans × L. flava, and was exhibited at a meeting of the Manchester Orchid Society on March 18th last. It should be a form of L. × Flavina (L. præstans being a form of L. pumila), but it differs so completely in colour that there is a doubt if the two can be identical. L. × Flavina has a primrose yellow flower, with an orange-yellow disc to the lip, while L. × Marjorie has purple sepals and petals, smaller than L. pumila, but otherwise similar, the undulate lip is yellow, with some reddish-purple marking and veining on the front, and there are four obtuse keels in the orange-coloured throat. It remains to be proved if both are forms of the same hybrid. Mr. Holmes remarks: "We have now in flower 150 fully expanded Cattleya Trianæ and Schrœderæ, one of the latter with an inflorescence of five grand flowers, while some have six spikes of four flowers each; also a fine lot of Dendrobium Wardianum in bloom.

Two secondary hybrid Paphiopedilums are sent from the collection of O. O. Wrigley, Esq., Bridge Hall, Bury, by Mr. Rogers. One is from P. villosum aureum × Buchanianum, and flowered for the first time in March, 1908. It bears a certain resemblance to P. × Lathamianum, but the flower is smaller and more yellow, while the petals as well as the dorsal sepal show a dark purple band down the centre, a character derived from the pollen parent, which is a hybrid from P. Spicerianum and P. Druryi, both of which have the dark band in the dorsal sepal, while in P. Druryi it is only present in the petals. The second hybrid is from P. × Measuresianum Amesianum × exul, and flowered for the first time in March, 1909. It is most like the latter in general character, and bears distinct purple blotches on the dorsal sepal. The influence of P. villosum is chiefly seen in the villous ovary.

A fine form of Dendrobium × Ainsworthii is sent from the collection of James Geddes, Esq., The Lodge, Red House, Ascot. It has blush-pink sepals and petals, and a very large feathered reddish maroon disc to the lip. It may be referred to D. × Ainsworthii splendidissimum.

A Cattleya is sent from the collection of Sir John Edwards-Moss, Roby

Hall, Torquay, which was purchased some months ago as C. Percivaliana, and which it is said to resemble in its bulbs and narrow leaves, though the segments, and especially the lip, are more elongated. We suspect that it is an anomalous form of the species, and it would be interesting to know if it was imported with it.

OBITUARY.

Edward Shuttleworth.—The death is announced of Mr. Edward Shuttleworth, who was well known to the older generation of Orchidists as a collector of Orchids and other plants, originally for the late Mr. William Bull. After some time spent with Messrs. Knight & Perry, at Chelsea, he entered the service of Mr. Bull, afterwards taking charge of the collection of G. H. Bunney, Esq., of Stratford. When that was dispersed, in 1872, he again entered Mr. Bull's service, and in the following year was sent to Colombia on a collecting expedition, during which, and on subsequent trips, he sent home quantities of Cattleyas, Masdevallias (including several new species), Odontoglossums, and various other Orchids, &c. Later on he was in partnership with the late Mr. John Carder, under the title of Shuttleworth, Carder & Co., and afterwards with Mr. J. Charlesworth, as Charlesworth, Shuttleworth & Co. Some fifteen years ago he retired. Mr. Shuttleworth had been ill for a considerable time, and his death took place on March 5th, when he was in his eightieth year. He was interred at Mortlake on March 11th. His name is commemorated in Masdevallia Shuttleworthii, Stanhopea Shuttleworthii, and two or three other things.

MEGACLINIUM BUFO AND M. EBURNEUM.

It is interesting to record that the singular Megaclinium Bufo, which for so many years was only known from the original description, has been re-imported, and singularly enough, intermixed with another species only recently described, of which the habitat was unknown. M. Bufo was originally described by Lindley, from an inflorescence sent to him by Messrs. Loddiges, and of which a drawing was made. It is said to have been introduced from Sierra Leone. The plant itself was not described, and for a long time nothing more was heard about it. Not very long ago a plant of it flowered at Glasnevin, though I do not know its origin. In 1907 some Orchids were sent to Kew from the Gold Coast, by Mr. J. Anderson, of the Agricultural Department, and when the other day one of them flowered it was a source of great satisfaction to recognise in it the long-lost plant. But a different inflorescence was also pushing up in the clump, and this proves to be M. eburneum, Pfitzer (*Orchis*, ii. p. 134), described from the Lichtenstein collection, at Eisgrub, a species allied to M. leucorachis, Rolfe, but having smaller ivory-white flowers, with a tinge of yellow at the apex of

the dorsal sepal and petals. The rachis is also ivory-white, narrow, and the flowers rather crowded. The flowers of M. Bufo are arranged at distant intervals on a much broader rachis, and are green, spotted with dull brown, while the lateral sepals are greenish-white, with very minute dusky dots. Its history has already been given (*O.R.*, viii. p. 293). The vegetative organs are very similar in the two species, the pseudobulbs being oblong, 4-angled, with two oblong leaves, those of M. eburneum four to five inches long, and those of M. Bufo about five to eight inches. R. A. ROLFE.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent-square, Westminster, during April, on the 6th and 20th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The following meeting will be held on May 4th, and the subject of the afternoon lecture will be Mendel's Law and its Application to Horticulture, by Mr. C. C. Hurst, illustrated by lantern slides.

Three meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, during April, on the 1st, 15th, and 29th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m.

The remarkable group of Phalænopsis Schilleriana, for which Messrs. Charlesworth & Co., Haywards Heath, received a Gold Medal from the R.H.S. on February 9th last, is illustrated in the *Gardeners' Magazine* for February 20th (p. 146). It is very well pointed out that no such group has previously appeared there.

R. H. S. ORCHID COMMITTEE.—Some interesting Orchids have appeared at recent meetings, which are mentioned in the following report:—

January 26th, 1909:—

CATTLEYA MALFORMED.—A flower of a Cattleya having three stamens and a much reduced perianth was received from Mr. Gurney Wilson, and referred to Mr. Saunders for further examination.

February 9th, 1909:—

MALFORMED ORCHIDS.—Mr. Saunders reported that the flower of Cattleya Trianæ referred to him from the last meeting showed three perfect stamens surrounding the pistil, three very short and regular petals, and three sepals shorter still. Mr. Saunders showed drawings illustrating these points.

ALBINISM IN ORCHIDS.—Mr. Gurney Wilson exhibited specimens illustrating the inheritance of albinism in Dendrobiums. He found that

Dendrobium nobile murrhiniacum crossed with D. n. Ballianum gave seedlings almost exactly like typical D. nobile. D. n. virginale, which when selfed gives quite white seedlings, when crossed with D. Findlayanum gives D. × Cybele, all the seedlings being alike, and no light forms being among them. Similarly, Dendrobium Wardianum album crossed with D. nobile album gives all coloured flowers. Such "reversions" to coloured forms are becoming very common.

February 23rd, 1909 :—

Malformations in Orchids.—Mr. Gurney Wilson, F.L.S., sent the apical portion of a pseudobulb of Dendrobium nobile bearing a shoot from which roots had grown as in a vegetative shoot, and a flower, the lateral petals of which were coloured like the labellum. He also sent a dimerous flower of D. nobile, with the lip suppressed and the two lateral sepals coherent. A Cypripedium from Sir Jeremiah Colman having two dorsal sepals was also shown.

Mendelism in Orchids.—Mr. R. A. Rolfe showed flowers the result of crossing Epidendrum evectum and E. xanthinum. The former of these is purplish in colour, the latter yellow. The first cross gives E. × kewense, and flowers of this were shown. Seedlings had been raised from E. × kewense after self-fertilisation, and of these, one which flowered earlier was practically a reproduction of E. × kewense, while of two others (flowers of which were shown) one showed partial reversion toward the purple E. evectum, the other toward the yellow E. xanthinum. He also showed the result of recrossing E. × kewense with the original parent, E. evectum, the resulting plant having a purple flower not quite so dark as the latter parent, and said that E. × kewense re-crossed with E. xanthinum gave a more yellow flower than E. × kewense. Other plants of the crosses were yet to flower.

March 9th, 1909 :—

Beetle in Stem of Vanda teres.—Mr. G. S. Saunders reported that he had examined the stem of Vanda teres sent to a recent meeting of the Committee, and found that the beetle boring into it was a species of Xyleborus, not a native, nor, so far as can be ascertained, recorded as occurring in Europe up to this time. The plants attacked were sent by Mr. Rogers from a greenhouse at Bury, Lancs.

Aberrant Orchid.—From Mr. G. W. Miller, of Wisbech, came a specimen of Cypripedium Pitcherianum, Williams' var., with a well-formed double lip.

Orchid Hybrids.—Mr. H. J. Chapman showed Odontioda Bradshawiæ,

Oakwood var., raised by crossing Cochlioda Nœtzliana with Odontoglossum crispum var. Graireanum. The flowers showed no trace of blotching, but were almost of one shade of colour throughout. Another form, Odontioda Bradshawiæ Cookson's var., raised from a typical white Ondontoglossum crispum × Cochlioda Nœtzliana, had a deep mauve margin to the brick-red segments, and showed distinctly the deeper-coloured blotches upon the lighter ground colour. The difference in colour and markings in these two varieties forms an interesting problem in heredity.

We learn that Mr. F. W. Ashton, who has been with Messrs. Hugh Low & Co., Bush Hill, Enfield, as Orchid traveller since 1905, is leaving them on March 31st, 1909, and will cease to represent them in future.

ORCHID PORTRAITS.

ANGRÆCUM SESQUIPEDALE.—*Gartenfl.*, 1909, p. 55, fig. 4.

BRASSOCATTLEYA CLIFTONI MAGNIFICA.—*Gard. Mag.*, 1909, pp. 219, 220, with fig.

BULBOPHYLLUM DAYANUM.—*Gard. Chron.*, 1909, i. p. 194, fig. 82.

CYPRIPEDIUM × BRIDGEI MAGNIFICUM.—*Journ. Hort.*, 1909, i. p. 229, with fig.; *Gard. Mag.*, 1909, p. 184, with fig.

DENDROBIUM × SCHNEIDERIANUM, WESTONBIRT VAR.—*Gard. Mag.*, 1909, p. 251, with fig.

LÆLIOCATTLEYA LUSTRE VAR. GIGANTEA.—*Gard. Chron.*, 1909, i. p. 168, with suppl. t.

ODONTIODA BRADSHAWIÆ, COOKSON'S VAR.—*Gard. Chron.*, 1909, i. p. p. 174, fig. 73; *Gard. Mag.*, 1909, p. 211, with fig.; *Journ. Hort.*, 1909, i. p. 252, with fig.; *Garden*, 1909, i. p. 137, with fig.

ODONTIODA GOODSONIÆ.—*Gard. Chron.*, 1909, i. pp. 194, 195, fig. 83.

ODONTIODA LUTETIA.—*Journ. Hort.*, 1909, i. p. 207, with fig.

ODONTOGLOSSUM × ROLFEÆ.—*Gartenfl.*, 1909, p. 57, t. 1580.

ODONTOGLOSSUM × TRIPUDIANS × PESCATOREI CHARLESWORTHII.—*Orchis*, 1909, p. 10, fig. 1.

VANDA WATSONI.—*Rev. Hort. Belge*, 1909, p. 90, with fig.

ANSWERS TO CORRESPONDENTS.

T. H. C. Odontoglossum × Andersonianum, a form with very elongated segments.

A. E. B. A good Odontoglossum Andersonianum, with clear white ground.

G. W. B. L., L. H., and others. Next month.

G. H. H. Odontoglossum pulchellum.

J. H. Unavoidably postponed until next month.

Catalogue received. Messrs. Charlesworth & Co., Haywards Heath. This new priced Catalogue contains a very extensive series of Orchids, with illustrations of some of the new houses at Haywards Heath, and a plan of the Nursery and offices.

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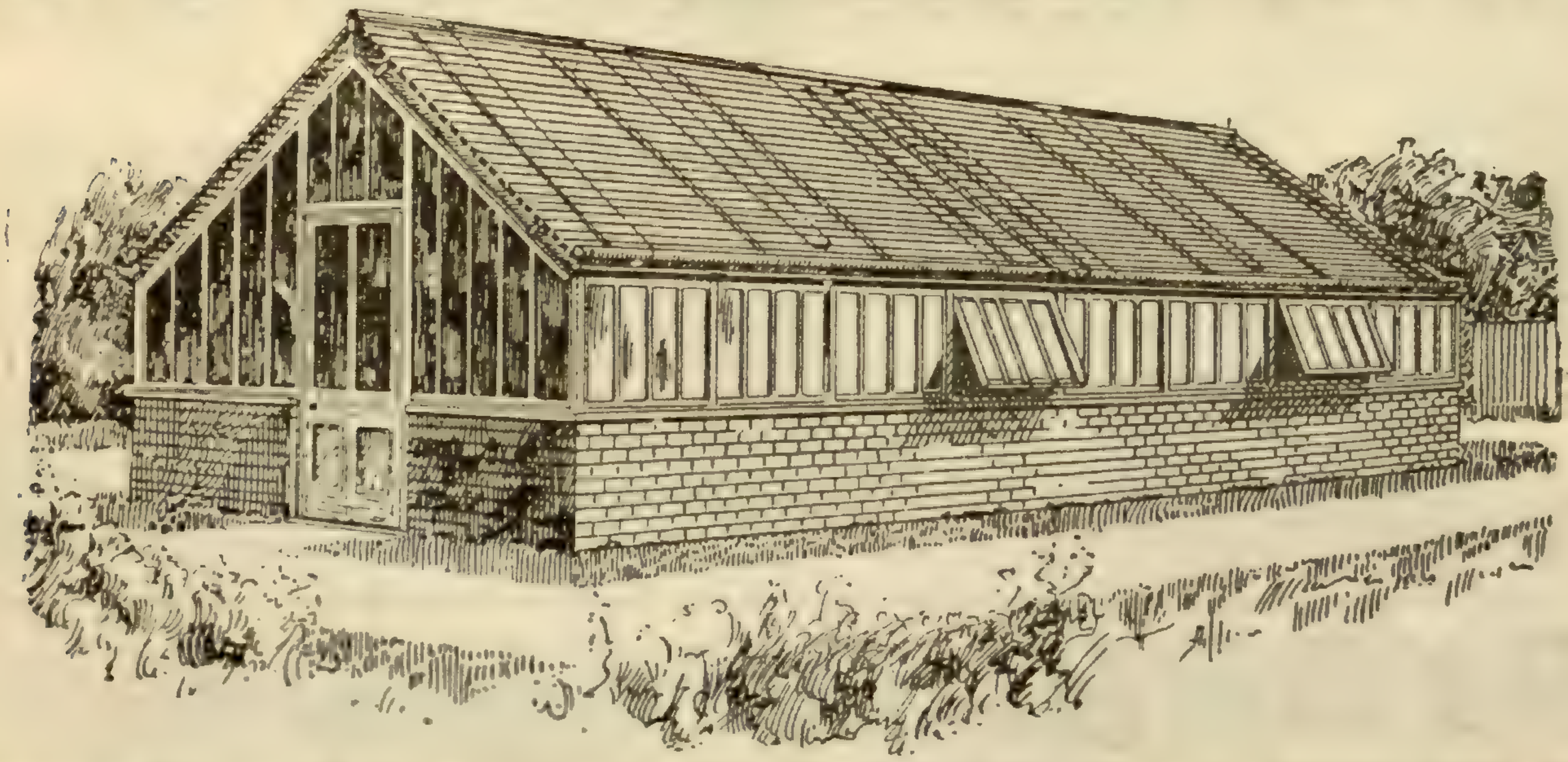

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THE ORCHID REVIEW.

VOL. XVII.] *MAY*, 1909. [No. 197.

THE EVOLUTION OF THE ORCHIDACEÆ.

ORCHIDS are universally acknowledged to rank amongst the most singular and most modified forms in the vegetable kingdom. . . . An examination of their many beautiful contrivances will exalt the whole vegetable kingdom in most persons' estimation.—*Charles Darwin.*

The celebration of the Darwin Centenary at Cambridge during the coming summer affords a fitting opportunity for a review of what is known respecting the evolution of the Orchidaceæ, on a study of which some of Darwin's conclusions were based, and which furnished the materials for one of his most fascinating books, *On the various contrivances by which British and foreign Orchids are fertilised by Insects, and on the good effects of intercrossing.* That work appeared 43 years ago, and since that time our knowledge of the family has made great progress, though much still remains to be done before we can claim to have an adequate idea of its origin and progressive developr ent.

One might look to the geological record for some clue to the origin of the family, but this is practically blank. It is true that Protorchis and Palæorchis have been described from fossil leaves found in the Eocene beds of Mt. Bolca, Italy, but it is quite doubtful whether they belong to Orchidaceæ at all, and there is no trace of Orchids in the remarkable Amber flora, which is also of tertiary age. We are thus limited to such evidence as can be obtained from existing representatives of the family, and here there are ample materials to work with, and a remarkably diversified range of structure, both floral and vegetative.

The family Orchidaceæ is the largest among Monocotyledons, and owes its peculiarity largely to the irregular development of the flower, which takes the form of suppression of some of the parts and the union of the remainder into two compound organs, the lip and the column, giving the flower a high degree of complexity. The ovary is inferior, and the seeds numerous and very minute, with a reticulated seed-coat, and a quite rudimentary embryo.

Orchids belong to the most highly specialised group of Monocotyledons, known as Microspermeæ, characterised by the inferior ovary, petaloid perianth, and numerous minute seeds with rudimentary embryo. It is

divided into two families or Natural Orders, Burmanniaceæ and Orchidaceæ, the former with regular or actinomorphic flowers, and seeds containing endosperm, the latter with the flowers irregular or zygomorphic, and the seeds without endosperm. The latter is by far the larger and more highly specialised.

The most primitive of existing Orchids is the genus Neuwiedia, containing some half-dozen species, two of which flowered at Kew a few years ago, and were figured in the *Botanical Magazine*, N. Lindleyi (t. 7368), with yellow flowers, and N. Griffithii (t. 7425), with white flowers. At the first glance they scarcely look like Orchids at all, on account of the free stamens and linear anthers, but they have all the essential characters of the Order, and in fact Neuwiedia with two other small genera, Apostasia and Adactylus, form the small tribe Apostasieæ. It is true that some authors have considered them a distinct Natural Order, but if this view were accepted it would be necessary to make the Cypripedieæ another distinct Order, it being much nearer to Apostasieæ than to the great Orchidaceous suborder Monandræ. In point of fact Apostasieæ is a tribe of ancestral Orchids.

The primary division of the Orchidaceæ is into the suborders Diandræ (sometimes called Pleonandræ) and Monandræ, the former having two or three perfect anthers, and the latter normally only one. There are other essential differences. For example, in the Diandræ the pollen grains are not aggregated into pollinia as in the Monandræ, nor is there a rostellum. The rostellum is a later adaptation, and its function is to secrete a viscus by which the pollinia are secured to the bodies of the insects which fertilise the flowers.

The suborder Diandræ is divided into two tribes, Apostasieæ and Cypripedieæ, the former having a three-celled ovary, a nearly regular perianth with subequal segments, two or three more or less elongated anthers, the pollen dry, and the style slender, straight, with a minute three-lobed stigma; while in the latter the perianth is irregular, with very unequal segments, one of them, the lip, developed as a pouch-like organ, the anthers globose, the pollen grains cohering into a sticky mass, and the stigma dilated and shield-shaped, while above it is situated a second shield-shaped body, called the staminode. The ovary may be either three-celled, as in Apostasieæ, or one-celled, as in Monandræ.

It is very interesting and instructive to compare the structure of Neuwiedia with such a complex flower as Stanhopea, but equally difficult to understand the relationship of some of the parts without tracing the successive steps by which this high degree of specialisation has been reached, and to this point the present article is largely devoted. It is only in this way that we can hope to understand the numerous beautiful adaptations which are met with in the Order.

Neuwiedia looks more like some Amaryllidaceous plant than an Orchid, owing to its free stamens, elongated versatile anthers, and slender straight style. The perianth is nearly regular, and connivent into a narrow tube, which is inserted obliquely on the pedicel, while the lip is petal-like. Thus the flower owes its irregularity chiefly to the fact that three of the six stamens are absent, and these all on one side of the flower. The stamens present are the median one of the outer staminal whorl, and the lateral pair of the inner whorl. The flower is evidently fertilised by insects, though no details are known. In Apostasia, the next genus, there are only two stamens, the median one being reduced to a filament-like staminode, which is partly united to the back of the style, while the anthers are obliquely attached to a short filament and unequal at the base. The perianth is nearly regular, and the segments rather more spreading than in Neuwiedia. In Adactylus the perianth agrees with Apostasia, but the median stamen is entirely suppressed, and the anthers are cordate, and equal at the base.

In Cypripedieæ a higher degree of specialisation is reached, but the plan of the flower is identical with that of Apostasieæ. The lip has become transformed into a pouch-like organ, formed by the union of the median petal with a pair of petaloid staminodes, representing the two lateral stamens of the *outer* staminal whorl (which are suppressed in Apostasieæ) The lateral pair of the *inner* whorl are fertile, as in the preceding tribe, but have become globose in shape, and are borne upon a well-developed column, while the pollen grains cohere together in a sticky mass. The median stamen of the outer whorl is modified into a shield-shaped staminode, which is placed just behind the opening of the pouch, and the stigma is also shield-shaped, and situated on the underside of the column.

The flowers, so far as known, are fertilised by bees, which enter the mouth of the pouch, crawl up the tube past the stigma, and make their exit at the lateral openings situated at either side of the base, opposite the anthers. In crawling out their backs become smeared with the sticky pollen, some of which is left on the stigma of the next flower visited. The whole flower is beautifully adapted to secure cross-fertilisation by suitable insects, and to exclude others whose visits would not secure this end. The insects are only known in a few cases, but without them seeds are not produced, and the inference is obvious.

The tribe contains four genera, Selenipedilum, containing three tall reed-like plants, with small flowers, a three-celled ovary, a persistent perianth, and crustaceous seeds, as in Vanilla; Phragmopedilum, differing in its stemless habit, conduplicate leaves, larger flowers, deciduous perianth, and fusiform, reticulated seeds; Cypripedium, with one-celled ovary, deciduous habit, plicate leaves, and persistent perianth; and Paphiopedilum,

differing from the preceding in its evergreen habit, conduplicate leaves, and deciduous perianth, and from all the others in having an imbricate (not valvate) perianth. The two first are Tropical American, and have the ovary of Apostasieæ, the third is widely diffused through the North temperate zone, and the last extends from North India and South China through Malaya to New Guinea. The tribe is in a transition state, for the two latter genera have the ovary of Monandræ. Selenipedilum is probably not in cultivation, the species so-called in gardens really belonging to Phragmopedilum.

We now come to the great suborder Monandræ, characterised by the possession of a single stamen—the median one of the outer staminal whorl. The simple pollen grains of the Diandræ are now left behind, and we find them cohering in fours (tetrads), or the contents of each pollen sac cohering in masses, called the pollinia. Correlated with this character we find that the third stigmatic lobe (the median one) is modified into a totally new organ, the rostellum, whose function it is to secrete a viscus by which the pollinia are attached to the body of the fertilising insect, and to prevent them from falling on to the stigma of the same flower. The stamens and pistils are confluent into a central column, and the two lateral stamens of the inner whorl are only present as staminodes, which usually take the form of a pair of wings or teeth, situated at the sides of the stigma, while those of the outer whorl are confluent with the median petal, forming the lip and its crests. It is believed that the third stamen of the inner whorl is also frequently represented in the crests of the lip. These characters may be regarded as common to the suborder, but there are other phases of complexity which will be mentioned under the different groups in which they are found. These must be left for a later paper.

R. A. ROLFE.

(To be continued.)

AN ANOMALOUS CYPRIPEDIUM CAPSULE.

LAST year, in the collection of G. Shorland Ball, Esq., Under Fell, Burton, Westmoreland, on a plant of Cypripedium × Eve, the flower of which had been fertilised, I noticed on the base of the seed capsule, a small leaf, which kept growing, and after a time made a second leaf. I tied some moss on the flower stem underneath the leaf; and in about a month a young root was pushing through the moss. After sowing the seed I placed the lower portion of the seed capsule, with the young growth attached, in a pot with a little loam and moss, and now it is showing another root, also a third leaf. I should be glad to know if any of your readers have had a similar experience.

J. HERDMAN.

ORCHIDS IN SEASON.

SEVERAL beautiful flowers are sent from the collection of H. S. Goodson, Esq., Fairlawn, Putney, by Mr. Day. There is a good form of Odontioda Bradshawiæ measuring over 2½ inches across, and having broad cinnabar red sepals and petals, the latter with three or four whitish lines near the base, the lip margined and blotched with cinnabar-red, on a pale ground, and the crest and disc bright yellow. Another, called Odontioda "Ernest Henry," is said to have been derived from Cochlioda Nœtzliana and Odontoglossum × Queen Alexandra, and received a First-class Certificate from the R. H. S. on April 6th. The flower measures over two inches across, and has broad sepals of an almost uniform dull claret-red, inclining to brown, with an orange-coloured crest. He also sends a very fine, well-blotched Odontoglossum × Lambeauianum, O. × L. Goodson's var., a large and handsome form, with good forms of O. crispum and O. × armainvillierense, a very fine O. × Rolfeæ, a good Cattleya Mendelii and flowers of the handsome Phaius × Marthæ, and a larger, much lighter form, called Goodson's variety.

Several beautiful flowers are sent from the collection of J. J. Neale, Esq., of Penarth, and among them three pretty forms of Odontoglossum × Adrianæ, two having a light yellow ground, the third white, and all regularly spotted with brown on each of the segments. Two forms labelled O. crispum have a clear white ground, with regular red-brown blotches on all the segments, and may be forms of the same hybrid, which they closely resemble except in having a more crispum-like lip. In one case the column wings are entire. This hybrid may be described as quite confluent with O. crispum. A flower of O. × loochristiense is also enclosed, and Mr. Haddon remarks that this and all the other forms just mentioned have flowered out of an importation of O. crispum. Other pretty Odontoglossums enclosed are O. cirrhosum Klabochorum, sceptrum, pulchellum and maculatum. There is also a spike of the pretty rose-coloured Arpophyllum giganteum, which in shape resembles a lamp brush, a richly-coloured Phaius grandifolius, Masdevallia caudata, a flower of the interesting Cirrhopetalum Wendlandianum, a near ally of C. Collettii, the brilliant Renanthera Imschootiana, Lælia Cowanii, Dendrobium thyrsiflorum and chrysotoxum, Cattleya Skinneri and Lawrenceana, Epidendrum × O'Brienianum, and a small yellow-flowered Polystachya from West Africa.

A noble form of Odontoglossum crispum is sent from the collection of J. H. Grogan, Esq., Slaney Park, Baltinglass. It measures 3¾ inches from tip to tip of the petals, themselves barely under 1¾ inches across, and the sepals over 1¼ inches. The shape is nearly circular, and all the segments are prettily crisped. The petals are pure white, and the sepals tinged with

pink, and bearing two purple blotches, while the lip has one large blotch in front, and many small ones on either side of the crest.

A flower of the very handsome Cattleya Schrœderæ The Baron, which received a First-class Certificate from the R. H. S. on April 6th, is sent from the collection of Lt.-Col. G. L. Holford, Westonbirt, Tetbury, by Mr. Alexander. It has delicate blush-pink sepals and petals of perfect shape, and a broad zone of light purple in front of the orange-coloured disc of the lip. A flower of Cattleya × Robert de Wavrin, which received an Award of Merit on the same date, is also sent. It is said to have been obtained from C. Schrœderæ × Schilleriana, and has rose-pink sepals and petals, the latter being very broad, and a quite entire rosy lip, with somewhat darker veins in front of the orange-coloured disc. The resemblance to C. Schrœderæ is unmistakable, but we cannot trace the influence of C. Schilleriana in the flower.

Flowers of a handsome Dendrobium, purchased as D. Pierardi at a sale of newly-imported Burmese Orchids, are sent by Dr. Otto N. Witt, Berlin. It is D. lituiflorum, a more slender species than D. nobile, and with a longer tube to the lip, while the colour is much like D. n. nobilius. It is rare in cultivation.

Three forms of Cattleya Mendelii are sent from the collection of G. Hamilton-Smith, Esq., Finchley. C. M. Gloria Mundi has rosy lilac sepals and petals, and the front half of the lip bright amethyst-purple, while the side lobes are white and the disc yellow. It was purchased at the Westfield sale. A second, purchased at Messrs. Protheroe's Sale Rooms, with the varietal name The Queen, is lighter in every respect, though of similar type. The third is a larger flower, with petals measuring $4\frac{1}{4}$ by $2\frac{3}{4}$ inches, and the lip rather elongated, and rosy-purple, with lilac-coloured veining.

HORMIDIUM PSEUDOPYGMÆUM.

A CURIOUS little Costa Rican Orchid has just flowered at the Royal Botanic Garden, Glasnevin, which apparently belongs to Hormidium pseudo-pygmæum, a species described from that country in 1899 (Finet in *Bull. Herb. Boiss.*, vii. p. 121). It is allied to H. uniflorum, Heynh., a plant which was figured in the *Botanical Magazine* (t. 3233), but differs in having longer pseudobulbs, which are cylindrical at the summit, rather larger leaves, and in having the flowers borne in a short spike. The flowers are white with a few red markings on the lip. The species was collected in Costa Rica by Tonduz, and flowered with M. Barbey at Perrière in 1898. The Glasnevin plant was obtained from Mr. J. O'Brien in August, 1901, as Epidendrum sp. from Costa Rica. Hormidium was placed as a section of Epidendrum by Lindley, but raised to generic rank by Bentham.

R. A. R.

ALBINISM IN DENDROBIUMS.

THE facts underlying the production of albinos are sufficiently perplexing. It is now well known that albinos of distinct species or races, even if remaining constant when self-fertilised, frequently revert to coloured forms when intercrossed, but there are other cases where the union of coloured forms results in the production of albinos. One of the latter came before the Scientific Committee of the R.H.S. at the meeting held on April 6th. Flowers were sent from the collection of R. G. Thwaites, Esq., Streatham, which had been obtained from Dendrobium × Wiganiæ and D. × Thwaitesiæ crossed in both cases with D. × Wiganiæ xanthochilum, all the parents being yellow, but the hybrids in each case white, with a zone of purple on the disc of the lip. Mr. Thwaites wrote that six plants of the former had flowered, and three of the latter, all having similar features, and he added :—"You will notice that the pollen caps and flower pedicels are also white. I feel sure that it would be quite useless to use those flowers for obtaining white hybrids, and it may be that the unsuccessful attempts to obtain white flowers from apparently white parents is due to coloured parentage somewhere behind the flowers used. These and other results, though apparently confusing, may later on assist in throwing light upon the albinism question, as notwithstanding the mass of contradictions which are appearing, I feel sure there is some logical law relating to it."

Now D. × Wiganiæ is a hybrid from D. nobile (purple with dark maroon disc to the lip) crossed with D. signatum (yellow), and has buff yellow flowers, with a dark brown disc to the lip, and D. × Thwaitesiæ is a hybrid from D. × Wiganiæ and D. × Ainsworthii (D. nobile × D. aureum), the latter having light yellow flowers with a deep brown velvety disc. D. × Wiganiæ xanthochilum is a brighter yellow form from the same capsule as D. × Wiganiæ. Thus we can scarcely call the case before us one of reversion, but rather a problem as to how it is that in some cases the union of purple with yellow gives white. This often occurs when D. nobile is crossed with D. aureum, as witness the white forms of D. × Ainsworthii, but not when crossed with D. signatum, for we have no white forms of D. × Wiganiæ ; yet in the cases now before us it cannot be due to the influence of D. aureum, for that species is not represented in D. × Wiganiæ, and the albinism is equally pronounced in each case. The pollen parent was identical in each, but that does not help us to understand the phenomena. Nor does a Mendelian interpretation throw any light on the matter, for the first cross mentioned is simply the "Fi" generation, to use the Mendelian notation, being simply the union of two seedlings out of the same capsule, and the albinism extends to all the six seedlings that have yet flowered. The "cause" of this curious behaviour is at present a mystery, but it would

be very interesting if Mr. Thwaites would try to self-fertilise one of the seedlings and let us know the result. There is nothing like following up the case if we are to find a clear path through what at present seems like a forest of contradictions. R. A. R.

VANDA CŒRULEA.

THIS lovely Vanda is seldom seen at its best condition when under cultivation. It is found on the dry, grassy slopes of the Khasia Mountains in Eastern India, in the neighbourhood of the Brahmapootra, at an elevation of 4,000 feet above sea level. The plants are found in great numbers on oak trees, which are small, gnarled, and sparingly leafy, so that the Vandas are fully exposed to the sun, air and wind. The atmosphere is humid, especially during the rainy season, but at no time is it fully saturated with moisture. The plants cling, by their roots, tenaciously to the rough, dry bark, and often completely cover the boughs. In the flowering season the temperature averages 70°, and the atmosphere during the day-time is dry, but in July and August, when rains are frequent, the temperature is a little higher, whilst in winter it falls much lower. Under these conditions of summer heat, autumn drought, and dry, cool air of winter, the most beautiful of Indian Orchids flourish, such as Dendrobium Devonianum, D. Dalhousianum, D. Farmeri, also species of Cœlogyne, Bulbophyllum, Cymbidium, and a few species of Cypripedium.—F. NEWMAN, in *Gard. Chron.*, 1909, i. p. 194.

[We believe that most of the importations of recent years have come from the Shan States of Upper Burma. Of course the climatic conditions are similar, and should be taken into consideration by cultivators.—ED.]

SOBRALIA RUCKERI.

SOME time ago a handsome Sobralia was exhibited by Messrs. Duchesne Lanthoine & Co., Watermael, Brussels, under the name of S. Lanthoinei (*Trib. Hort.*, 1908, p. 608). It is said to have been introduced from Columbia, in 1903. A specimen was sent and proves to belong to S. Ruckeri, Lindl., a very handsome species whose history has already been given (*O.R.*, xii., p. 184). It received a First-class Certificate from the R.H.S. in May, 1904. It grows in the Ocana district, at 5,000-6,000 feet elevation. The species is allied to the Peruvian S. rosea, and belongs to a group that is very seldom seen in cultivation, in which the inflorescence is somewhat elongated and flexuose, and the flowers are borne in the axils of spreading bracts. The flowers of S. Ruckeri are large and handsome, the colour bright rose-purple, with a darker lip, and some yellow and white in the throat. R. A.R.

BRASSOCATTLEYA SUSANNÆ.

A PHOTOGRAPH of this handsome Brassocattleya has been sent by Mr. E. O. Orpet, South Lancaster, Mass., with the following note:—

"The photo enclosed is taken from the initial flowering plant of a cross between Cattleya × Thayeriana ♀ and Brassavola Digbyana ♂. It is, we think, the first plant raised to flowering age in this country with B. Digbyana as a parent. It was exhibited before the Massachusetts Horticultural Society on March 25th last, and was awarded a First-class Certificate

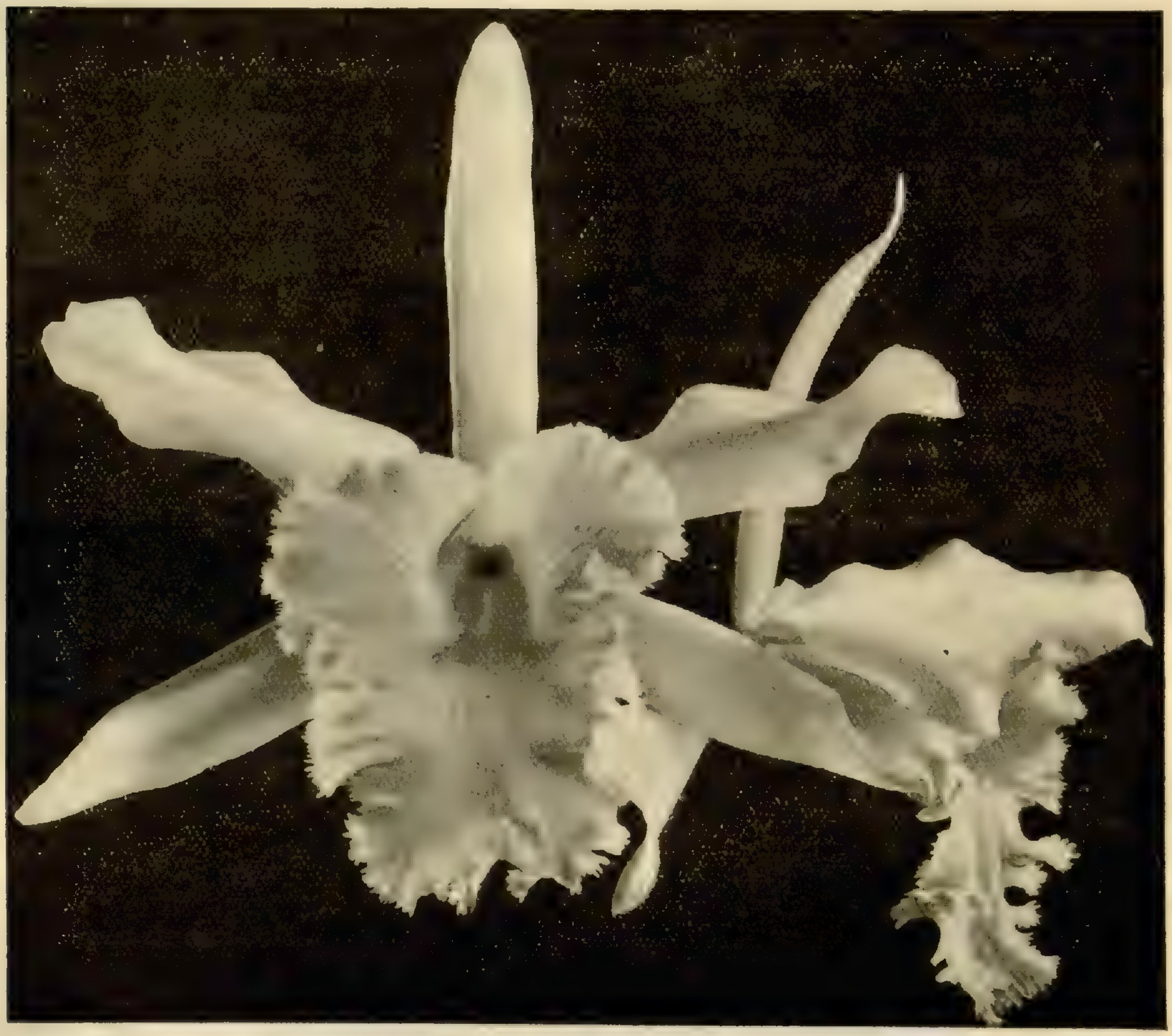

Fig. 11. BRASSOCATTLEYA SUSANNÆ.

of Merit. The flowers are about five inches across, of a pearly pink, well expanded, and had been in bloom a month before being exhibited, showing their inherited durability from C. × Thayeriana. The seed was sown in 1901." It is a handsome thing, and an analysis of parentage shows that it is derived from B. Digbyana ½, C. intermedia ¼, and C. Schrœderæ ¼, and it may be described as intermediate between B.-c. Cordelia and B.-c. langleyensis, which if crossed would yield a hybrid of identical composition.

BOTANICAL ORCHIDS.

A CORRESPONDENT who is much interested in Botanical Orchids would like us to devote an article to the subject, and with this we gladly comply, though it is a little difficult to know precisely what is intended. The term is somewhat elastic, and in its widest significance would include every Orchid that finds its way into cultivation, however insignificant. But there are many species that are not showy enough to be grown generally for decorative purposes, or that are unsuitable for cut flowers, but yet possess very attractive qualities—grace of form, quaintness of structure, fragrance, beauty of colour or markings, or a combination of these characters—and are indeed exquisite little plants when well grown. They are perhaps best comparable with alpine plants among hardy flowers.

They are no monopoly of botanic gardens, as witness the magnificent collection at Burford—and others could be mentioned. But they are generally grown as supplementary to, not instead of, a general collection, and their selection is to a great extent a matter of taste and opportunity. The amount of space at command and the nature of the houses have also to be taken into consideration. Many, however, take up very little room, and are as easily grown as their more showy neighbours, so that anyone with a liking for them can soon find plenty of suitable subjects, and also discover the kind of treatment necessary.

These interesting little plants sometimes turn up in the most unexpected places, for in passing through an ordinary collection something will occasionally be pointed out that was "found upon the roots of some imported Cattleya" or "Dendrobium," and is promoted to the dignity of a small pan or basket of its own, and suspended on some convenient wire—at all events until it blooms.

Many interesting plants are picked up in this way, and among them we recall a plant of the exquisite little Eria extinctoria, which was found on an imported Dendrobium at Clare Lawn, and many other cases could be mentioned. When plants are found in this way it is easy to give them suitable treatment from the outset, and generally speaking one has some sort of a clue—either the name, the country, or a knowledge of the species with which they were imported—otherwise a difficulty might be found in knowing how to treat them.

Owing to the extent of the subject it will be as well to follow some definite system of arrangement, and we may commence with a few species suitable for the Cool or Odontoglossum house. The majority of these plants are natives of tropical America, chiefly of that portion of the Andes that extends from Peru to South Mexico, at an altitude of 6,000 or 7,000 up to as much as 13,000 feet altitude, where the climate is temperate and almost

uniformly moist. They are thus strictly alpine plants, and the genus Masdevallia may be taken as typical.

Of this genus nearly a hundred species have been in cultivation at some time or other, and the majority of them can only be called botanical, though not by any means insignificant. We may limit our remarks to the smaller species. The Triaristella group contains several exquisite little plants, as M. triaristella, gemmata and tridactylites. Their flowers are borne upon capillary peduncles, and have been compared to gnats. They are produced with the utmost freedom. The leaves are very narrow, and a good specimen can be accommodated in quite a small pan. The M. caudata group contains several very pretty species, of which M. Estradæ, Wageneriana, Arminii, and hieroglyphica may be mentioned. All are free-growing and floriferous under suitable treatment. Coming to the M. coriacea group, we find M. Reichenbachiana, Schrœderiana, velifera, peristeria, leontoglossa, Rolfeana, floribunda, and others from which a selection can be made. The scarlet section hardly comes within the limits of our title, but we may claim M. racemosa, in spite of its brilliant scarlet flowers, and the beautiful M. rosea is not generally grown. Indeed, it is difficult to meet with it, and when obtained it requires more than ordinary care. Of the M. Chimæra group, M. Chestertoni, Houtteana, bella, and one or two others, may well find a place.

If one wants a really eccentric species, let him include M. muscosa, for its mossy peduncles are like nothing else, unless it be one or two other species of the same group—of which M. xipheres is also in cultivation—and its sensitive lip supplies a never-failing source of interest. When the flower opens the sepals curve back, and the lip is seen folded beneath the arch of the petals. Soon afterwards the blade gradually reflexes on its axis, and hangs in front of the flower on a kind of slender stalk. At the apex of the latter is situated a small tubercle, and if this is touched with a hair the lip immediately moves gently upwards, and then suddenly closes with a snap. This is evidently an arrangement for securing fertilisation by some particular insect. Let us imagine the plant to be in its native home. An insect alights on the lip, touches the sensitive tubercle, and is imprisoned in the cavity of the tube by the rapidly-closing lip. There is now a small opening between the apex of the lip and the petals, through which the insect would naturally crawl, bringing away the pollinia, to be left upon the stigma of the next flower visited. The mossy peduncle is evidently an adaptation to prevent crawling insects from gaining access to the flower. But we must leave Masdevallia and pass on.

The allied genus Restrepia contains several very attractive species, of which R. striata, R. maculata and R. elegans are among the best, but several others are to be found in various collections, including the original R.

antennifera, a striped flower, for which R. maculata often does duty in gardens.

The species of Pleurothallis are not generally attractive, but there are exceptions, for P. astrophora, P. Barberiana, and the gnat-like P. macroblepharis are little gems when well-flowered. P. ornata is remarkable for possessing a row of drooping, white appendages round the margin of the sepals, which are so light as to wave about in the slightest breeze. Several others, equally small and scarcely less attractive, are occasionally met with, while among the larger species must be mentioned P. Roezlii, whose racemes of large claret-coloured flowers are decidedly showy, and the graceful P. scapha with some of its allies.

The species of Cryptophoranthus are very quaint, and unique in having the flower closed at the apex, with two small openings at the side, hence the term "window-bearing Orchids." The significance of this arrangement is still obscure. It is evidently connected in some way with the fertilisation of the flower by some particular insect, but Darwin's remark, "Some new and curious contrivance has here to be made out," is still true.

Physosiphon Moorei is a gay little plant when in bloom, and lasts long in perfection. The flowers of Stelis are remarkable for opening and shutting at various times of the day, and a few species are graceful and attractive. Thus it will be seen that the subtribe Pleurothalleæ, to which the foregoing all belong, is by no means devoid of interest. We may now pass to the Oncidieæ.

Odontoglossum is the typical genus of Cool House Orchids, yet several species which are not generally grown should find a place in a representative collection. And there are several species of Oncidium from similar altitudes which make a welcome variation, being distinct in appearance and colour. Several allied genera contain very interesting species which are suitable for suspending from the roof of this structure, but with a few exceptions they are rather difficult to obtain at the present time.

(To be continued.)

CIRRHOPETALUM BRIENIANUM.

THIS singular species has again appeared, a plant received from the Brussels Botanic Garden over a year ago, with other Malayan species, having now flowered at Kew, and proves to be identical with the original, which was introduced from Borneo, by Messrs. Linden, in 1891, and afterwards described (Rolfe in *Kew Bull.*, 1893, p. 62). Ridley afterwards reduced it to a variety of C. Makoyanum, Rchb. f. (*Bot. Mag.*, t. 7259), and states that it inhabits the Malayan Peninsula as well as Borneo, but as a specimen sent by him as C. Makoyanum is typical C. Brienianum the

matter is not cleared up, and assuming the reputed Brazilian habitat of C. Makoyanum to be erroneous, we are still without a clue as to whence it was imported. The two species are nearly allied, as was originally pointed out, but in C. Makoyanum the united lateral sepals are gradually narrowed up to the acute point, and the colour is greenish, speckled with brown, but in C. Brienianum the lateral sepals do not narrow upwards, and are unequally bilobed at the apex, while the colour is straw yellow, with dark dull maroon dorsal sepal and petals, and a similar stain at the base of the lateral sepals. The lip is yellow in the plant now in bloom.

R.A.R.

CALENDAR OF OPERATIONS FOR MAY.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

IMPORTED PLANTS.—During the last few weeks large quantities of Orchids have been imported. This is the best time to get imported plants quickly established, and they give abundance of flowers the first season of growing. Dendrobiums, Cattleyas, Lælias, and all the harder-growing section should be potted into pots just large enough to get a little fibre round and between the roots. Trim the plants and stake them neatly, so as to make them look as presentable as possible, and place them in a warm moist house, where they will soon commence to grow and root. They should be examined and sponged before potting to be safe, though as a rule they are clean and free from insect pests. Sometimes in a newly imported batch of Cattleyas, traces of Cattleya Fly will be found in the young growths just as they are starting into growth, and this can be easily detected by the swollen growth, which will be about three times as large as usual. This should be cut out at once and burnt, or the whole house will become infested.

ONCIDIUM LANCEANUM and PAPILIO have also been imported this season. They are beautiful Orchids and require warm treatment, either at the warm end of Cattleya house or in the stove. O. Lanceanum is a scented variety. If potted in a compost of Osmunda fibre with a few leaves scattered in, they should soon make nice plants, and both are much admired when in flower. Both like plenty of moisture during their growing season, and a fair amount of sun in order to keep them from making sappy growths.

DENDROBIUM FALCONERI is one of the most beautiful of all the Dendrobes, and also one of the most difficult to manage. During the growing season this species should be given plenty of air and sun, and it will keep in good condition longer if grown on rafts. Plenty of water will be required during the growing season. The flowers are large considering the size of the bulbs, and they quite hide the plant when freely flowering, producing a very beautiful sight.

DENDROBIUM DEVONIANUM is another very pretty species that has also been largely imported. This should be grown in baskets, as the long pendulous bulbs make a far prettier sight when in flower than when they are staked up in pots. When suspended near the glass the sun can get through the plant, and the bulbs have a much better chance to ripen, as they are very free growers, and make long bulbs.

VANDA cœrulea is one of the most beautiful, and also one of the most difficult to manage. The spikes of beautiful blue flowers form a great contrast in a group, and are always admired. We tried our plants last year in Osmunda fibre and leaves, without moss, and we have not got a spotted leaf so far. The weather last autumn and winter was anything but nice for growing anything of this description, so when repotting we used no moss, as we have a lot of trouble to get the plants dry during the winter months, even if we only sprinkled the moss, so we decided to do without it altogether. So far as last season is concerned the plants have improved, and we have not been bothered with spot in the leaf. This species needs very little shade—just sufficient to prevent scalding—and abundance of air. With a little care I think they will eventually be as well-grown here as abroad. The pots should be well crocked, and plenty of crocks and charcoal mixed with the compost to give a quick drainage.

CIRRHOPETALUMS.—These curious flowers seem to be in favour just now, and anyone interested in them can find many beauties, especially when examined under the microscope. They are very easily grown, and many varieties can be accommodated without taking up much room. They can be grown suspended from the roof of the Cattleya house, and they like plenty of water during the growing season. They should be repotted or top-dressed, whichever they require, just as they commence to root from the new growth. Good fern fibre and leaves, with a little moss, adding plenty of small crocks in a compost, will suit them.

BULBOPHYLLUM also contains some very interesting species, and there are some beautiful things amongst them, especially when closely examined. Nearly all of them require intermediate temperature, and many odd places can be found for them in different houses. They seem to do almost anywhere, if they can get plenty of moisture and air during their growing season, and most of them will stand a fair amount of sunlight. They are not troubled with many pests if kept well syringed in their growing season. A mixture of fern fibre, leaves and moss, with plenty of crushed crocks and charcoal will serve as a compost, and as they are not deep-rooting subjects, shallow pans or baskets suit them best to grown in. Re-pot just as they commence to grow and root, and keep them well shaded until they get re-established, when they can be given the usual treatment.

SOPHRONITIS GRANDIFLORA is another beautiful species which takes up

very little room to grow in, and when well flowered makes a good show with its numerous scarlet flowers. It can be grown in the Cattleya house or Intermediate house, and does best suspended from the roof. Shallow pans suit it to grow in, or if specimens are wanted baskets will suit it. When mixed with other flowering Orchids they make a beautiful show, and will stand a considerable time in flower, and are not generally affected by fogs. They should be potted as soon as they have finished flowering, as they root from the new bulb. A compost similar to that advised for Bulbophyllums will suit them, and they should not be allowed to shrivel for want of water at any time. Give a little extra shade until they get established again, when they can be given Cattleya house treatment. They like to be placed in an airy position near the ventilators during the summer months.

RODRIGUEZIA FRAGRANS, as its name denotes, is a very fragrant species, and the graceful spikes are much admired. It should be suspended from the roof, and is very free-growing, and likes plenty of room to ramble about in. A nice pan or basket will give a good many spikes, as most of the bulbs will throw two spikes. Scale is about its only enemy, and this can be kept down by occasional sponging with water and soft soap. Intermediate house treatment suits it during the summer months, but it should be removed to slightly warmer quarters during the winter. They should be repotted as soon as they commence to root, and placed in the stove until the roots get well into the new compost. Osmunda fibre, leaves and very little moss and crocks will make a good compost for it. Crock the pans well, as it likes plenty of water in the growing season, but not a sour compost to root into.

ONCIDIUM CONCOLOR, for its size, and the small amount of room it takes up, is one of the most showy Oncidiums grown. It will now be in flower or just about to flower, and makes a beautiful show as a front row plant for a group, as its yellow flowers form a good contrast to the more brilliant Cattleyas. It is very little trouble to grow, and takes up very little room, as it can be suspended from the roof of the Cool or Intermediate house. It should be repotted or top-dressed as soon as it commences to grow, and a compost of Osmunda fibre, leaves, moss and crocks will suit it. Give plenty of water during its growing season, and keep it fairly dry after it has made up its bulbs, until the spikes show, when plenty of water must again be given until the flowers are developed; then if kept fairly dry the blooms will last a long time in perfection. Like most Oncidiums, it likes plenty of air during the summer months, and a fair amount of sunshine in the autumn to ripen the bulbs, which helps to prevent the appearance of spot during the dull weather.

Now that we are again in the growing season, every advantage should

be taken of the sunny weather. Whenever the morning gives promise of a fine day the fire should be banked, and as little heat left in the pipes as possible. Some growers dispense with fires altogether during June and July, but here we get chilly nights, even in the hottest months, and so find it advisable to keep a little heat at night. Where fires can be dispensed with without causing injury, it is a good plan to do so, as then the plants get every advantage of the moisture in the houses. When plenty of air is given, and in most houses left on all night, it must be more natural for the plants than fire heat, and is well worth a trial, with all the cooler-growing section, at any rate.

The houses should be syringed round in the afternoon as soon as the sun begins to lose its power, and the blinds on the Cattleya, Dendrobium, and Mexican house rolled up from three to four o'clock. All ventilators should also be closed for two or three hours, and then a crack can be put on for the night if it is favourable weather. Cypripediums, Odontoglossums, and the occupants of the stove should also be syringed and closed up, but the blinds must not be rolled up quite so early. The ventilators can be opened where necessary later. I find this is one of the best methods of keeping down thrip and red spider, far better for the plants than continually using insecticides, which are injurious if not very carefully used, especially when the growths are young and tender. None of the plants should be allowed to become dry enough to shrivel during the growing season, which is also one of the surest ways of breeding thrip.

Houses should be damped three or four times a day in order to keep a nice growing atmosphere, and the walls and pipes should not be forgotten because out of sight, as when the pipes are cool it is a good chance to get the whole of the ground damp without making an excessive amount of steam. Houses should be well ventilated, but no draughts should be caused, or trouble will begin. Ventilation should be regulated according to the outside conditions, not put on every day and left on every night regardless of circumstances, for even in the best weather we hardly get two days alike. Ventilate well, but do not cause draughts or let the temperatures drop quickly. Start early, before the houses get like ovens, and increase as the sun's power increases.

Pans suspended from the roof must be looked over daily, as they dry much quicker than those on the stages, and do not get the same amount from the syringe as do the other plants.

In case insects should make an appearance just while the plants are making new growths, fumigate rather than use liquid insecticides, but do it as soon as the insects are discovered, not wait until the plants are smothered and then blame the fumigation for not being effective. Cleanliness is an important factor in successful Orchid culture.

PAPHIOPEDILUM × VENUS.

THE annexed figure represents a beautiful hybrid from the collection of Dr. Otto N. Witt, Westend, Berlin, and is reproduced from a photograph kindly sent by him. It was purchased without a name at the sale of Mr. Appleton's collection, but is supposed to be a seedling between P. insigne Sanderæ and P. niveum, and was therefore thought to. be P × Venus

Fig. 12. PAPHIOPEDILUM × VENUS.

Cookson's var. That, however, has decidedly longer sepals and petals, and is thus a larger but less compact flower. Dr. Witt remarks that the ground colour of the whole flower is a creamy white, slightly suffused with lemon-yellow in the centre, and the spots are reddish brown. The foliage most resembles P. insigne, but is distinctly mottled. It is certainly a charming little plant.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 6th, when there was a very fine display of Orchids, and the awards consisted of one Gold and eight other medals, four First-class Certificates, five Awards of Merit, and two Botanical Certificates.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Silver Flora Medal for a fine group, including some good Cattleyas, Odontoglossums, &c., noteworthy among them being Odontoglossum × Lambeauianum Goodson's var., O. crispum Mrs. Goodson, O. × Wilckeanum, Cattleya intermedia alba, Sophrocatlælia Marathon, a good example of Odontioda Bradshawiæ, and others. A First-class Certificate was given to Odontioda "Ernest Henry," derived from Cochlioda Nœtzliana and Odontoglossum × Queen Alexandra, and having flowers of a nearly uniform colour, between dark reddish brown and claret, with an orange disc to the lip.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), received a First-class Certificate for Odontoglossum × percultum Cookson's var. (O. × Rolfeæ × ardentissimum), a very handsome variety, in which the rich purple markings obliterated most of the white ground colour, and an Award of Merit for O. crispum Angela, a large and heavily blotched variety, bearing a spike of thirteen flowers.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for the handsome Cattleya Schrœderæ The Baron, having lavender-pink flowers, with a darker tint in front of the orange-coloured disc of the lip, and an Award of Merit for Odontoglossum × Sylvia Westonbirt var. (cirrhosum × Rolfeæ), a very handsome variety, bearing cream white flowers, heavily blotched with purple-brown, with some light yellow on the disc of the lip. He also sent Dendrobium × Magda magnificum and Cattleya × Robert de Wavrin (Schrœderæ × Schilleriana), having broad rose-coloured sepals and petals, and a richly coloured, quite entire lip, the C. Schilleriana character thus being practically lost.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), received an Award of Merit for Læliocattleya Frederick Boyle var. Kerchoveæ, a beautiful white form with a light yellow disc to the lip, and some crimson markings on the side lobes. Botanical Certificates were given to Polystachya rhodoptera, a pretty rose-coloured African species, and to a plant called Megaclinium Bufo, which is not Lindley's plant of that name, but M. purpureorachis, Wildem., whose history is given at page 155. He

also sent two plants of Cœlogyne Sanderæ, each bearing three spikes, the rare Lycaste × Smeeana, and Maxillaria variabilis.

W. James, Esq., West Dean Park, Chichester, received an Award of Merit for Cattleya Schrœderæ Alexandra James, a pretty blush-white variety with orange-coloured disc to the lip.

J. Foster Alcock, Esq., Exhims, Northchurch, sent Cypripedium × Chapmanii nigrescens and C. × Wm. Lloyd superbum.

J. S. Bergheim, Esq., Belsize Court, London, sent Megaclinium falcatum.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontoglossum × Vulcan (crispum × Vuylstekei), a richly-coloured hybrid, a fine example of O. × Urania bearing a spike of 17 flowers, the handsome O. triumphans Lionel Crawshay, and others.

J. Gurney Fowler, Esq., Glebelands, S. Woodford (gr. Mr. Davis), sent Odontoglossum crispum Winnie, a good blotched form, O. × Arnoldii, a striking hybrid of unrecorded parentage, but apparently showing the influence of O. Hunnewellianum and O. Harryanum. It has medium-sized round dark reddish brown flowers, mottled with yellowish white at the margin, and some purple markings on the lip.

Major Lister, Warninglid Park, Haywards Heath, sent a good form of Cymbidium insigne.

John S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench) sent Odontoglossum × Kenchii (O. Kegeljani × Denisonæ Mossiæ), having cream-white flowers, spotted with chestnut brown.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), sent finely-grown examples of Odontoglossum × Ossulstoni nigrum, with a branched panicle of 59 flowers, and O. crispo-Harryanum Regina, with one of 25 flowers.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent good examples of Dendrobium × Wiganiæ, D. × Thwaitesiæ, and D. × chessingtonense.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya Trianæ Marie Feodorovna, a pretty blush-white form with the front lobe of the lip violet-purple, and the disc deep yellow.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a magnificent group, which filled a space about 90 feet by 12 at the end of the hall, to which the Society's Gold Medal was awarded. The arrangement may be described as consisting of three mounds, those to left and right consisting largely of about 200 well-flowered plants of Dendrobium nobile virginale, raised from seed in the establishment, with a number of hybrids, and the centre one consisting largely of fine Odontoglossums, while the intervening bays consisted of Cymbidiums, Cattleyas, Cypripediums, and various other

Orchids, with Sophronitis grandiflora, and other dwarf things in front, the whole forming a most beautiful effect.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a fine group, including two handsome varieties of Cattleya Schrœderæ, called Princess Mary of Wales and Magali Sander, Læliocattleya bletchleyensis, L.-c. Sunset (L. Jongheana × C. Percivaliana), Tetramicra bicolor, Angræcum sesquipedale, a pretty white Odontoglossum, apparently a white form of O. × amabile, and other good things. An Award of Merit was given to Odontoglossum × Dreadnought (Prince Albert × sceptrum), a large yellow hybrid heavily blotched with red-brown, and showing a good deal of the influence of O. triumphans.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a fine group, including several forms of Odontioda Lutetia, a fine example of Cœlogne pandurata with a spike of twelve flowers, Trichopilia suavis and Backhouseana, Phaius × Norman, Masdevallia Chestertoni, Odontoglossum Ossulstoni, a fine O. × Lambeauianum, Brassocattleyas, three good Angræcum sesquipedale, Læliocattleya Elinor, a very dark L.-c. Dominiana, and other good things.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Flora Medal for a fine group of Odontoglossums and others, noteworthy among them being the richly-blotched O. crispum Ashworthianum in excellent condition, a beautiful example of O. × Fascinator, O. Hallii, O. × Adrianæ, O. triumphans, and others.

Messrs. James Veitch & Son, Chelsea, also received a Silver Flora Medal for a good group, also containing numerous fine forms of Cattleya Schrœderæ, Brassocatlælia × elatior (Læliocattleya Hippolyta × Brassocattleya Veitchii), Cymbidium insigne, C. Lowianum, Læliocattleya Dominiana, L.-c. Violetta, L.-c. Niobe, some good Cypripediums, Odontoglossums, &c.

Mr. A. W. Jensen, Lindfield, Haywards Heath, received a Silver Banksian Medal for a good group of Odontoglossum crispum and Cattleya Schrœderæ, and a First-class Certificate for C. S. Irene, a fine lilac variety, with mauve-pink, well-frilled lip, and a deep orange throat.

Messrs. Hugh Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, including Dendrobium Jamesianum, D. crassinode, D. primulinum, D. nobile nobilius, D. × chessingtonense, Cymbidium × Holfordianum, C. insigne, Cœlogyne pandurata, Cattleya Schrœderæ albens, C. Lueddemanniana Stanleyi, Angræcum Leonis, and others.

M. Mertens, Mont.-St.-Amand, Ghent, received a Silver Banksian Medal for a good group of a dozen hybrid Odontoglossums, including O. × Lawrenceanum, O. × amabile, O. × percultum, O. × Lambeauianum, &c., with Cattleya × Suzanne Hye de Crom.

Messrs. James Cypher & Sons, Cheltenham, sent a number of good Cypripediums and Dendrobiums, noteworthy among them being a good D. atroviolaceum and some well-flowered hybrids.

The report of the Scientific Committee of this date contains a reference to Albinism in Dendrobium hybrids, which is referred to in detail on page 135.

AT the meeting held on April 20th there was again a fine display of Orchids, and the awards consisted of seven medals, one First-class Certificate, five Awards of Merit, two Botanical Certificates, and three Cultural Commendations.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received Cultural Commendations for a fine plant of Odontoglossum Pescatorei, bearing three large panicles with an aggregate of 153 flowers, and for a fine specimen of Cattleya × Enid Westonbirt var., with a spike of seven flowers, while Awards of Merit were given to Cattleya × Robert de Wavrin (Schrœderæ × Schilleriana), having blush-white sepals and petals, and a deep rose-coloured lip, with some darker veins in front of the yellow disc, and to Læliocattleya Goldcrest (C. Schrœderæ × L. Cowanii), bearing an inflorescence of numerous clear yellow flowers, with some darker veining on the lip. He also sent L.-c. Dorothy var. splendens and fulgens, the latter prettily tinted with salmon colour, Odontoglossum × Phœbe Westonbirt var., and many other good hybrids.

Sir Trevor Lawrence, Bart., K.C.V.O , Burford, Dorking (gr. Mr. White), received a Cultural Commendation for three finely grown plants of Dendrobium crepidatum, and an Award of Merit for Odontoglossum × loochristiense aureo-fulvum, a fine variety, having bright yellow sepals and petals, barred and blotched with dark chocolate, and the lip white with a few brown spots in front of the yellow crest. He also sent Brassavola Martiana, and a selection of rare Masdevallias, including M. caudata, the curious M. deorsa, M. pachyantha, M. leontoglossa, varieties of M. ignea, M. × Fraseri, M. × Shuttryana Chamberlainii, and others.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), received a First-class Certificate for Odontoglossum × Theodora (Rossii rubescens × triumphans), a very handsome hybrid, most like the former in shape, and having the sepals closely barred and blotched with reddish claret colour, which largely obliterates the yellow ground colour, the petals less heavily marked, and showing a yellow area at the apex, and the large rounded lip white, tinged with lavender, and bearing a crescent-shaped red-brown blotch in front of the yellow crest. He also sent O. × Vulpex (Pescatorei × Vuylstekei), and a dark blood-red form of Odontioda Charlesworthii.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Flora Medal for a very fine group, including some white forms of Cattleya intermedia, C. citrina with six flowers, Odontoglossum Edwardii, some good blotched forms of O. crispum, with a number of hybrids, two good plants Epidendrum Wallisii, Oncidium concolor, O. Marshallianum, O. leucochilum, and other good things.

Gurney Wilson, Esq., Glenthorne, Haywards Heath, received a Botanical Certificate for the pretty Oncidium barbatum.

J. T. Bennett-Poë, Esq., Holmewood, Cheshunt (gr. Mr. Downes), sent cut spikes of Cymbidium × Colmaniæ Holmewood var.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), showed a fine form of Odontoglossum × percultum, and O. crispum Milicent, a prettily blotched home-raised variety.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Odontoglossum × Rolfeæ var. Ernestii, a very fine, densely-spotted variety, and Cattleya Mendelii Goodson's var.

W. James, Esq., Chichester, showed Cattleya Schrœderæ Silvia James, a fine pale lilac form.

H. Little, Esq., Baronshalt, Twickenham (gr. Mr. Howard), sent Cattleya Mendelii Baronshalt var., having a purplish crimson lip, with but little of the yellow disc remaining.

The Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), showed Odontoglossum crispum virginale Blenheim var.

Mrs. Temple, Leyswood, Groombridge (gr. Mr. Bristow), sent Læliocattleya Mrs. Temple (L.-c. Greenwoodii × C. Mossiæ).

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a choice group, including the beautiful Odontoglossum armainvillierense xanthotes, white with some orange spots on the lip, a very heavily blotched home-raised O. crispum of great promise, Aërides Fieldingii, Læliocattleya Mercia, Oncidium concolor, Diacrium bicornutum, the brilliant crimson Renanthera Imschootiana, the rare Trichopilia Backhouseana, Cattleya Trianæ Edgar Knight, a handsome thing with deep violet-purple lip and very little yellow in the throat, a fine example of Brassocattleya Veitchii var. Queen Alexandra, a fine light scarlet form of Odontioda Bradshawiæ, and other beautiful species and hybrids. An Award of Merit was given to Epilælia Lionetii (L. purpurata × E. atropurpureum), bearing rose-purple flowers, most like those of the Epidendrum parent, and a Botanical Certificate to Pleurothallis Birchenallii (Rolfe), a near ally of P. scapha, but with more purple flowers.

Messrs. Sander & Sons, St. Albans, received a Silver Flora Medal for a fine group, the centre of which was occupied by a beautiful specimen of Miltonia × Bleuana Sander's var., which gained an Award of Merit. It bears large,

nearly circular white flowers, tinged with violet at the base of the petals, and marked with reddish lines on the disc of the lip. Other noteworthy plants were Odontoglossum × Dreadnought, O. crispum Thompsoni, a handsomely blotched form, also a fine white form of the species, Læliocattleya Cholletiana with four spikes, L.-c. Dominiana magnifica, the striking Scuticaria Steelii, Vanda cœrulescens, Polystachya bracteosa, and other rare things.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a fine group, containing some well-bloomed Dendrobium infundibulum, D. nobile virginale, D. × Apollo grandiflorum, D. × Dalhou-nobile, D. atroviolaceum, and other fine Dendrobiums, Angræcum infundibulum, Cattleya intermedia alba, C. citrina, C. Skinneri, C. Schrœderæ, Miltonia Warscewiczii, Chysis bractescens, Brassocattleya Thorntoni, B.-c. Maroni, Bifrenaria Harrisonæ, Oncidium concolor, &c.

Messrs. Hugh Low & Co., Bush Hill Park, Enfield, were awarded a Silver Flora Medal for a fine group, including several good forms of Cattleya Schrœderæ, C. S. alba, C. intermedia alba, Dendrobium barbatulum, D. Jamesianum, D. Devonianum, some fine D. Wardianum, one of them bearing over 120 flowers, Cymbidium × Lowgrinum, C. Lowianum concolor, Cirrhopetalum Amesianum, the rare Ionopsis paniculata, a fine specimen of Masdevallia Pourbaixii, Cypripedium × Olivia, C. × Maudiæ, C. × Watsonianum, and other good things.

M. Maurice Mertens, Mont-St.-Amand, Ghent, also received a Silver Flora Medal for a choice group of hybrid Odontoglossums, including O. × Wiganianum, O. × amabile, O. × Lawrenceanum, O. × Wilckeanum, O. × percultum, O. × illustre, and others.

Mr. A. W. Jensen, Lindfield, Haywards Heath, received a Silver Banksian Medal for a good group of Cattleya Mendelii and Odontoglossum crispum, the former including plants bearing 21 and 23 flowers, and the latter a very pretty rosy form well dotted with brown.

The Scientific Committee's report of this date contains the following:—

MALFORMED ORCHIDS.—Mr. G. Wilson, F.L.S., sent two malformed Cattleyas from the same spike, which had three outer perianth pieces, but the inner were reduced very greatly, the small lip springing from near the apex of the column instead of from the base. Three stamens were present.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

There was only a moderate display at the above Society's meeting held at the Coal Exchange on April 1st, though the exhibits presented a bright appearance, as almost everything is seasonable now. The Committee sat

as follows: Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Ward, Cowan, Shill, Ball, Keeling, Upjohn, Holmes, Parker, Ashton, Warburton, and Weathers (Sec.).

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a fine group of plants, which, being subdivided for "Cup" purposes, gained one Silver-gilt Medal (general group), one Silver Medal (Odontoglossums), and two Bronze Medals (for Cypripediums and Cattleya respectively). Odontoglossum crispum Quotiens, a good blotched variety, gained a First-class Certificate. The same award went to Odontioda Goodsonæ, a medium sized flower, scarlet with faint white marblings. Awards of Merit went to Cattleya Schrœderæ var. Countess Delapore, C. S. var. Matador, and C. S. var White Queen. Other good things included in the group were Odontoglossum × ardentissimum Vanguard, some well-grown O. crispum, Cypripedium × Beeckmanii, &c.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), staged a good group of Cypripediums, which was awarded a Silver Medal. C. × Hopkinsonianum received an Award of Merit. The group contained many plants previously certificated. I noted C. × Dora Crawshay, C. × Rajah, C. × Para, C. × Euryades New Hall Hey var., C. × Leonora, C. × Venus Rann Lea var., &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), sent a splendid group of Cattleyas, which included many good varieties of C. Schrœderæ and C. Trianæ, and gained a Silver Medal. A First-class Certificate was given to C. Schrœderæ alba var. Mrs. J. McCartney, a pure white flower with delicate lemon throat, and an Award of Merit to C. Schrœderæ var. Model.

J. Leemann, Esq., West Bank House, Heaton, Mersey (gr. Mr. Smith), sent a fine plant and variety of Brassocattleya × Veitchii and one of B.-c. × langleyensis; also the beautiful white Odontoglossum crispum Mary Gratrix, and O. c. moortebeekiense in fine form (Vote of Thanks).

Ed. Rogerson, Esq,, Oakdene, Didsbury (gr. Mr. Price), sent four plants of unnamed seedling Odontoglossums, but all of excellent promise, being well spotted or blotched (Vote of Thanks).

G. H. Pease, Esq., Monton Grange (gr. Mr. Mace), sent a fine specimen of Dendrobium nobile Ballianum, well-flowered.

G. S. Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), showed Bulbophyllum Lobbii var. siamense, which gained a First class Botanical Certificate.

Messrs. Moore & Co., Rawdon, Leeds, staged a beautiful and floriferous group of Dendrobiums, which gained a Silver Medal. I noted D. nobile virginale, D. Jamesianum, and several varieties of D. × Artemis and D. × Mrs. A. Walker. The group was relieved with Odontoglossums, including

varieties of Pescatorei and crispum, O. × altum, O. × loochristiense, O. × excellens, O. × amabile, O. × Phœbe, &c.

Mr. J. Robson, Altrincham, staged a good group of bright and varied plants, in which I noted two hybrid Odontoglossums, both of good shape and well blotched; also many well-flowered Dendrobium Wardianum, Cœlogyne cristata alba, a well-flowered Cypripedium × Thompsonianum, C. × Maudiæ, &c. (Silver Medal).

Mr. Shackleton, Great Horton, Bradford, staged a small group. Odontoglossum crispum Shackleton's var., a bright rosy form of good shape and substance, gained an Award of Merit. I noted also a good Cypripedium exul, Bifrenaria Harrisonæ, &c. (Bronze Medal).

Messrs. Keeling & Sons, Westgate Hill, Bradford, staged a nice group, which included Dendrobium Cambridgeanum superbum and Cypripedium × Eurybel (Euryades × bellatulum), both of which gained Awards of Merit. I noted also a very distinct Odontoglossum nebulosum, Læliocattleya × Millie (L.-c. Ernestii × L. Jongheana), Masdevallia × Imogen, × Rushtoni, Shuttleworthii, &c.

Mr. W. Bolton, Wilderspool, sent a very choice group of Cattleya Schrœderæ and the beautiful Odontoglossum crispum Lucienianum.

Mr. J. Birchenall, Alderley Edge, sent a quaint species of Lycaste, and Oncidium abortivum.

Messrs. Jensen, Lindfield, Sussex, sent examples of Cattleya Mendelii, C. Schrœderæ and Odontoglossum crispum, all of good quality.

At the meeting held on April 15th there was a very good exhibition, most of the well-known species of the season being represented. Committee present: Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Ward, Upjohn, Warburton, Keeling, Parkes, Holmes, Ashton, Cypher and Cowan.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a very fine group, or rather three sub-groups, Odontoglossums, Cattleyas and Lælias, and Cypripediums, gaining two Silver Medals, a Bronze Medal, and a Silver-gilt Medal for the whole group. Awards of Merit were given to Cattleya Schrœderæ The Queen, Odontoglossum × Wilckeanum var. Vuylstekei, O. crispum Emperor Rex, Cypripedium niveum Vine House var., and C. × Quartus (villo-bellatulum × Dora Crawshaw). I noted a fine Læliocattleya Dominiana, Cattleya Schrœderæ White Queen, C. S. Empress, Odontoglossum crispum Quotiens, O. c. moortebeekiense, and several fine Cypripediums.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a fine and well-flowered group of Cattleyas, &c., including many varieties of C. Schrœderæ and C. Mendelii, all of good quality, gaining a Silver-gilt Medal.

Læliocattleya Bird of Paradise (L. flava × C. Mendelii) gained an Award of Merit.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a bright and nteresting group of Odontoglossums. I noted a fine O. × Charlesworthii with a good yellow ground, O. × Rolfeæ, O. × Adrianæ, many fine types of O. crispum, and unnamed hybrids (Silver-gilt Medal).

H. J. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), staged a very fine group of Cypripediums, considering the lateness of the season. C. × Iris var. Dora, C. × Clive, and C. bellatulum Queen of Spain all received Awards of Merit. Other good things in the group were C. × Juno Craven's var., C. × Rajah Rann Lea var., C. × Hitchinsiæ var. Eva, C. × Queen of Italy, C. × Alcibiades var. " Illustrious," &c. (Silver Medal).

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), showed a fine group, consisting chiefly of Odontoglossums, and including O. × loochristiense var. Mikado, O. sceptrum var. Masereelianum, O. × Lambeauianum var. Antenor, O. cirrhosum, O. × amabile, O. Hallii, O. crispum, O. triumphans, &c. (Silver Medal).

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent a small group, which contained some fine varieties of Miltonia × Bleuana and Cypripedium × aureum Surprise. Odontioda × eboriacum, a plant of unknown parentage, with flowers of medium size, scarlet sepals and petals, and the lip scarlet with pale yellow markings, received a First-class Certificate.

H. Arthur, Esq., Pine Villa, Blackburn, sent a small but choice group, which contained several varieties of Cymbidium × Veitchii, one of which gained a First-class Certificate, Lycaste Skinneri alba, Cœlogyne cristata alba, C. c. Lemoniana, &c. (Bronze Medal).

H. Whateley, Esq., Kenilworth, gained an Award of Merit for Odontoglossum crispum Newtoni. He also sent a good plant of Brassocattleya Hyeæ, and several spotted Odontoglossum crispum and types of O. × loochristiense.

E. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), sent a nice little group, which included Odontoglossum crispum Sunrise and O. × Lambeauianam Rogersoni, both receiving Awards of Merit. I noted a very fine Miltonia × Bleuana var. Rogersoni, also Odontoglossum crispum Oliver Ashworth, O. c. Duke of Connaught, O. × Ernestii, O. sceptrum Masereelianum, O. luteopurpureum, and Odontioda × chelseiensis.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), sent Cattleya × Dorothy, C. Trianæ Auburn House var., and Cypripedium × Colossus.

Dr. Hodgkinson, Wilmslow (gr. Mr. Woore), sent Cypripedium bellatulum Princess Clementine, a flower with very pale spotting (Award of Merit), and C. leucochilum.

E. Ashworth, Esq., Harefield Hall (gr. Mr. Holbrook), gained an Award of Merit for a good plant of Chysis Limminghei.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a fine specimen of Anguloa Clowesii, which gained a Cultural Certificate.

Mr. Wm. Bolton, Warrington, sent a good group of choice varieties of Cattleya Mendelii and C. Schrœderæ, Odontoglossum × Wilckeanum Empress, O. × Harryano-crispum, a fine Miltonia × Bleuana Our Queen, Cypripedium × Pollettianum magnificum, &c. (Silver Medal).

Mr. J. Robson, Altrincham, staged Brassocattleya × Thorntoni, the beautiful Cattleya Lueddemanniana Stanleyi, a few choice C. Schrœderæ and C. Mendelii (Vote of Thanks).

Messrs. Low & Co., Enfield, staged Cattleya Schrœderæ alba, and a nice hybrid Cattleya from C. Trianæ and C. Lawrenceana.

Messrs. Keeling & Sons, Westgate Hill, Bradford, staged a small group, which contained good plants of Odontoglossum × Wilckeanum, Masdevallia Shuttleworthii and M. Ephippium, the latter receiving a First-class Botanical Certificate.

Mr. J. Birchenall, Alderley Edge, showed a new and distinct Bifrenaria, nearly allied to Harrisonæ, the labellum having purple blue markings, and Chysis bractescens.

Mr. Hill, Vale Bridge, Sussex, showed Odontoglossum crispum Pleiades, and O. c. Marguerite, much spotted.

Messrs. Cypher, Cheltenham, showed a small group, in which I noted Læliocattleya × Ganymede, Brassocattleya Veitchii, Oncidium Weltoni, Dendrobium × Luna, &c. (Vote of Thanks).

Mr. W. Shackleton, Gt. Horton, Bradford, sent Cypripedium × Actæus and Odontoglossum crispum. H. THORP.

MEGACLINIUM PURPUREORACHIS.

ON April 6th last a Botanical Certificate was given by the R.H.S. to a very striking Megaclinium exhibited by Sir Trevor Lawrence, Bart., under the name of M. Bufo, but it is very different from Lindley's plant of that name, whose history has already been given (*O.R.*, viii. p. 293; xvii. p. 125). It belongs to M. purpureorachis, a species described in 1903, by De Wildeman (*Notices Pl. Utiles Congo*, p. 126), from materials collected by Gentil at Kinumbi, on the Upper Lomami—a tributary of the Congo—and afterwards figured (*Etudes Fl. Bas et Moyen Congo*, 1. pp. 116, 235, t. 29). Both description and figure, however, are imperfect, owing to their having been prepared from wild, fruiting specimens. Living plants, however, were introduced, one of which was sent to Kew, though it has not yet flowered. But the species flowered at the Royal Botanic Garden, Glasnevin, in September last. The inflorescence is very stout, over a foot high, and the

remarkably dilated rachis is undulate, and measures over seven inches long by an inch and a half broad. It is very heavily blotched with dark red-purple on a light yellowish green ground. The flowers are very hairy, dark brown in colour, and placed over half an inch apart on each side of the rachis. The author compares it with M. maximum, Lindl. (M purpuratum, Lindl., *Bot. Mag.*, t. 5936), but it is a far larger species in every respect, and the flowers are very different in structure. How the name Megaclinium Bufo became attached to the species is uncertain, but a small plant bearing this name was received from the Paris Botanic Garden in 1903, and the pseudobulbs and leaves agree with the authentic plant so well as to leave no doubt of their identity. At that time the vegetative organs of M. Bufo were unknown, so that there was nothing to show that the name was incorrect. It is the finest species yet known.

R. A. ROLFE.

THE HYBRIDIST.

LÆLIOCATTLEYA GOLDCREST.—A handsome hybrid, raised in the collection of Lieut.-Col. G. L. Holford, of Westonbirt, Tetbury, from Cattleya Schrœderæ ♀ and Lælia Cowanii ♂, which received an Award of Merit from the R.H.S. on April 20th last, on the occasion of its flowering for the first time. The flower is deep golden yellow throughout, fairly intermediate in shape, and over four inches across.

ZYGOPETALUM × CLARKSONI.—A pretty hybrid from the collection of H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), said to have been raised from *Z.* crinitum and *Z.* × Clayi. The sepals and petals are dark dusky brown, and the greater part of the lip violet-blue, with the crest and margin whitish. The flowers are fairly intermediate in shape.

PHALÆNOPSIS × ARTEMIS.—Flowers of a pretty hybrid Phalænopsis are sent by M. F. Denis, Balaruc-les-Bains, France. It was obtained by crossing P. amabilis Rimestadiana with the pollen of P. rosea, and one of the seedlings flowered for the first time in May, 1908, when only three years old. M. Denis states that the seedlings were grown by M. Noel Bernard, who sowed the seeds in tubes in February-March, 1905, and that some examples were exhibited at the London Conference on Genetics in 1906. M. Denis received five small plants, each possessing a single root, and they have grown without difficulty. They are vigorous, and the best has a leaf of twelve inches long, and carries two racemes with twenty-eight flowers and buds. Flowers of two plants are sent, differing somewhat in the shape of the lip and tendrils. The flowers are much like those of P. × intermedia, and are blush pink, with a more rosy lip, and some brown spots on the crest and side lobes of the lip. As M. Denis remarks, they must be referred to P. × Artemis, raised by Messrs. Veitch.

PAPHIOPEDILUM × WENDIGO.—A record from Mr. G. McWilliam, Whitinsville, Mass., carries the flowering of a hybrid between Paphiopedilum callosum ♀ and P. × nitens ♂ back to 1899, the plant receiving a Silver Medal from the Massachusetts Horticultural Society on April 15th of this year, under the name of Cypripedium × Mrs. George Marston Whitin. Mr. McWilliam was the raiser and exhibitor. The only record in the *Orchid Stud-Book* is P. × Wendigo, which flowered in the collection of the late Reginald Young, Esq., in 1905 (*O.R.*, xiii. p. 120.).

EPIDENDRUM DECIPIENS.

THERE is a handsome scarlet Epidendrum, closely allied to E. radicans, which though described over half a century ago is seldom seen in cultivation. A plant has now appeared in the collection of Mrs. B. B. Tuttle, Naugatuck, Conn., U.S.A., which is said to have been imported from Colombia, and an inflorescence and leaf have been sent by Mr. Pope, together with photographs, showing the former natural size and the whole plant reduced. The species has a curious history. It was described by Lindley in 1853 (*Fol. Orch.*, Epidendr. p. 70), and the habitat was thus described: "Wild in New Grenada, in the province of Ocana—Schlim, 1032; Demerara, on the Conocan Mountains—Schomburgk." Lindley then remarked: "This is nearest to E. Schomburgkii, from which it is distinguished by its equally divided lip, smaller flowers, and the inconsiderable keel of the lip. The flowers are vermilion, according to Schomburgk, orange according to Schlim." Curiously enough, these two specimens, which are mounted upon the same sheet in Lindley's herbarium, belong to two distinct species, one of which was already named. Schomburgk's Guiana specimen belongs to E. fulgens, Brongn., whose history has already been given (*Orch. Rev.* v., p. 264), and the name, E. decipiens, must therefore be limited to the Colombian plant. E. decipiens has already appeared in cultivation, for there are two drawings in the Day collection (xviii. tt. 73, 74), which were made in June, 1875, and Mr. Day remarked that the plants were bought at Stevens' in June, 1874, at a sale of Mr. Patin's plants from New Grenada. One of these is considerably darker in colour than the other. The flowers of E. decipiens closely resemble those of E. radicans but are rather smaller, and the stems are dwarfer, and not rooting as in that species. The plant is about three feet high, and much resembles E. elongatum in habit, while the sepals and petals are bright orange-scarlet, and the lip vermilion with some crimson markings on the disc and side lobes. It is interesting to be able to clear up the confusion in the history of the species.

R. A. ROLFE.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during May, on the 4th and 18th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Society's great annual Spring Show will be held at the Inner Temple Gardens on Tuesday, Wednesday, and Thursday, May 25th, 26th and 27th. The Orchid Committee will meet at 11 a.m., and the Exhibition opens to Fellows at 12.30 p.m. Silver Cups and Medals will be awarded, as usual, according to merit. The Sherwood Cup is this year offered for a group of Orchids, and the competition will be open to amateurs only—quality being preferred to quantity. Extraneous foliage may be used. Notice of intention to compete must be sent to the Society eight days beforehand. Five special judges will be appointed by the Council, who must be assured that the exhibit is in the main due to the work and capacity of the exhibitor or his legitimate employees.

The next meeting of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on May 13th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. We learn that the meeting announced for May 27th will not be held, on account of the Temple Show.

THE BEST SIX ORCHIDS.—*The Garden* recently offered a prize for a popular essay on the best six Garden Orchids, which was won by Mr. Edwin Platt, Borden Wood, Liphook, Hants, with the following: Calanthe × Veitchii, Cattleya Trianæ, Cœlogyne cristata, Cypripedium insigne, Dendrobium nobile and Odontoglossum crispum. It will be noticed that they are chiefly winter-flowering plants.

LORD KITCHENER'S ORCHIDS.—A writer in *M.A.P.* remarks that Lord Kitchener, who leaves India next August, has lately been devoting a great amount of his spare time to gardening, which has been for many years a favourite recreation of his. His official residence in the fort at Calcutta possesses rather extensive grounds, and these he keeps under his personal supervision when he is staying there. He is a very early riser, and gives two or three hours every morning to his gardens, digging and trimming the soil with all the ardour of a professional. He has of late years taken great interest in Orchid culture, and has visited recently some of the more famous Bengal collections. It is his intention when he settles down in England to purchase a small estate, somewhere within easy reach of London, where there is space to collect Orchids on a large scale.

The Spring Show of the Massachusetts Horticultural Society was a great success, and the *Florists' Exchange* says that the Orchid display was the best ever seen in Boston, and speaks well for the popularisation of these flowers, and for an extensive collection of them, as announced for next year. Three very fine groups are illustrated, namely, the first prize collection of Mr. E. B. Dane (gr. D. McKenzie), that of Mr. Seth A. Borden, and that of the Julius Roehrs Co. All were certainly excellent. A Vote of Thanks was given to Mr. E. A. Orpet for a collection of cut Orchids.

The Report of the R.H.S. Orchid Committee for March 23rd contains the following:—

ORCHID MALFORMATIONS.—Mr. Gurney Wilson showed malformed flowers of Odontoglossum Harryano-crispum on behalf of Mr. W. Bolton, of Warrington. There appeared to be no symmetry about the multiplication of parts in these flowers, and Mr. Wilson remarked that, as in the present case, when a portion is removed from an established plant, in the next season it is not very unusual for the older portion to bear malformed flowers, while the portions removed bear normal flowers. He also showed a flower of Selenipedium caudatum var. Lindeni, from Messrs. Charlesworth. In this variety the labellum is not slipper-shaped as in the type, but is replaced by a very long and tapering petal entirely similar to the two lateral petals; there are also three fertile stamens. The variety was figured by Reichenbach (*Lindl. Orchid. Linden.*, 28, 1846), under the name of Uropedium Lindeni. The form occurs wild.

EPIDENDRUM × KEWENSE.—Four more of the self-fertilised seedlings of Epidendrum × kewense are in flower, one being primrose yellow, a second rosy salmon-colour, a third light salmon, and the other still paler—a kind of light yellow with a suffusion of salmon-colour.

A photograph of Cypripedium montanum is sent from the collection of Dr. A. W. Hoisholt, Stockton, California. The plant flowered in his greenhouse, but is a native Californian species, and was gathered in the Upper Sacramento Valley, growing on hilly land, with a southern exposure, and under shrubs, in an auriferous clayey loam. It is much like our European C. Calceolus, except in having a white lip, and several flowers on a scape.

A very fine form of Oncidium Papilio has been sent from the collection of Dr. Miles Johnston, High Lea, Bideford. It was purchased as a semi-established plant, growing on a block.

THE ORCHID STUD-BOOK.—We may again remind our readers that the work is published from this Office direct, and those requiring copies will find particulars on the wrapper. No agents have been appointed.

ORCHID PORTRAITS.

BRASSOCATTLEYA SUSANNÆ.—*Flor. Exchange*, 1909, p. 529, with fig.

CATTLEYA LODDIGESII VAR. HARRISONÆ.—*Journ. Hort.*, 1909, i. p. 273, with fig.

DENDROBIUM × SCHNEIDERIANUM, WESTONBIRT VAR.—*Journ. Hort.*, 1909, i. p. 319, with fig.

DENDROBIUM SPECIOSUM.—*Gard. Chron.*, 1909, i. p. 219, fig. 94.

DENDROBIUM WARDIANUM.—*Garden*, 1909, i. p. 199, with fig.

DISA CRASSICORNIS (in South Africa).—*Garden*, 1909, i. p. 187, with fig.

LÆLIOCATTLEYA FREDERICK BOYLE var. KERCHOVEÆ.—*Gard. Mag.*, 1909, p. 293, with fig.

LÆLIOCATTLEYA PIZARRO, WESTONBIRT VAR.—*Gard. Chron.*, 1909, i. p. 233, with suppl. tab.

MASDEVALLIA IGNEA.—*Gard. Mag.*, 1909, p. 283, with fig.

MILTONIA WELTONI SUPERBA.—*Rev. Hort. Belge*, 1909, p. 125, with plate.

ODONTOGLOSSUM × CHARLESWORTHII THEODORA.—*Gard. Mag.*, 1909, p. 326, with fig.

ODONTOGLOSSUM CRISPUM FOWLERIANUM.—*Gard. Chron.*, 1909, i. p. 211, fig. 90.

ODONTOGLOSSUM CRISPUM XANTHOTES VAR. MRS. F. M. OGILVIE.—*Gard. Chron.*, 1909, i. pp. 257, 258, fig. 110.

ODONTOGLOSSUM ROSSII MAJUS.—*Journ. Hort.*, 1909, i. p. 343, with fig.

ODONTOGLOSSUM × SMITHII.—*Gard. Chron.*, 1909, i. p. 212, fig. 91.

ODONTOGLOSSUM × THEODORA.—*Gard. Chron.*, 1909, i. p. 269, fig. 115.

ODONTOGLOSSUM × WYONIANUM.—*Gard. Chron.*, 1909, i. p. 211, fig. 89.

PHALÆNOPSIS SCHILLERIANA (in Charlesworth's Nursery).—*Journ. Hort.*, 1909, i. p. 367, with fig.

SOPHROCATTLEYA THWAITESIÆ.—*Journ. Hort.*, 1909, i. p. 295, with fig.

VANDA CŒRULEA.—*Gard. Chron.*, 1909, i. p. 264, with suppl. tab.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

Dr. H. G. Grammatophyllum multiflorum and Dendrobium bursigerum. A note is held over till next month.

F. W. B. A form of Odontoglossum triumphans.

G. H. P. Oncidium brachyandrum, Lindl., a very rare Mexican species.

A. W. H. Cypripedium montanum.

Photographs received, with thanks. E.O.O., G.H.M., A.W.H.

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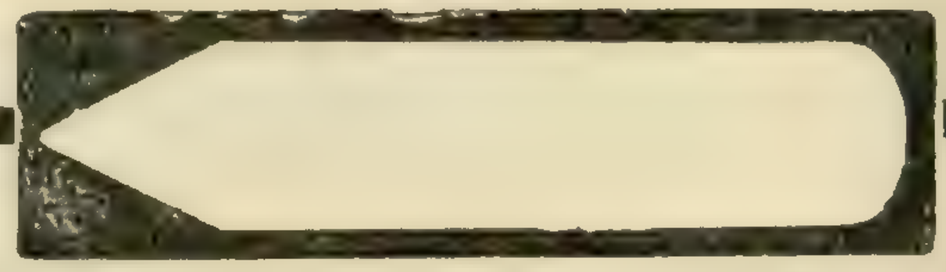

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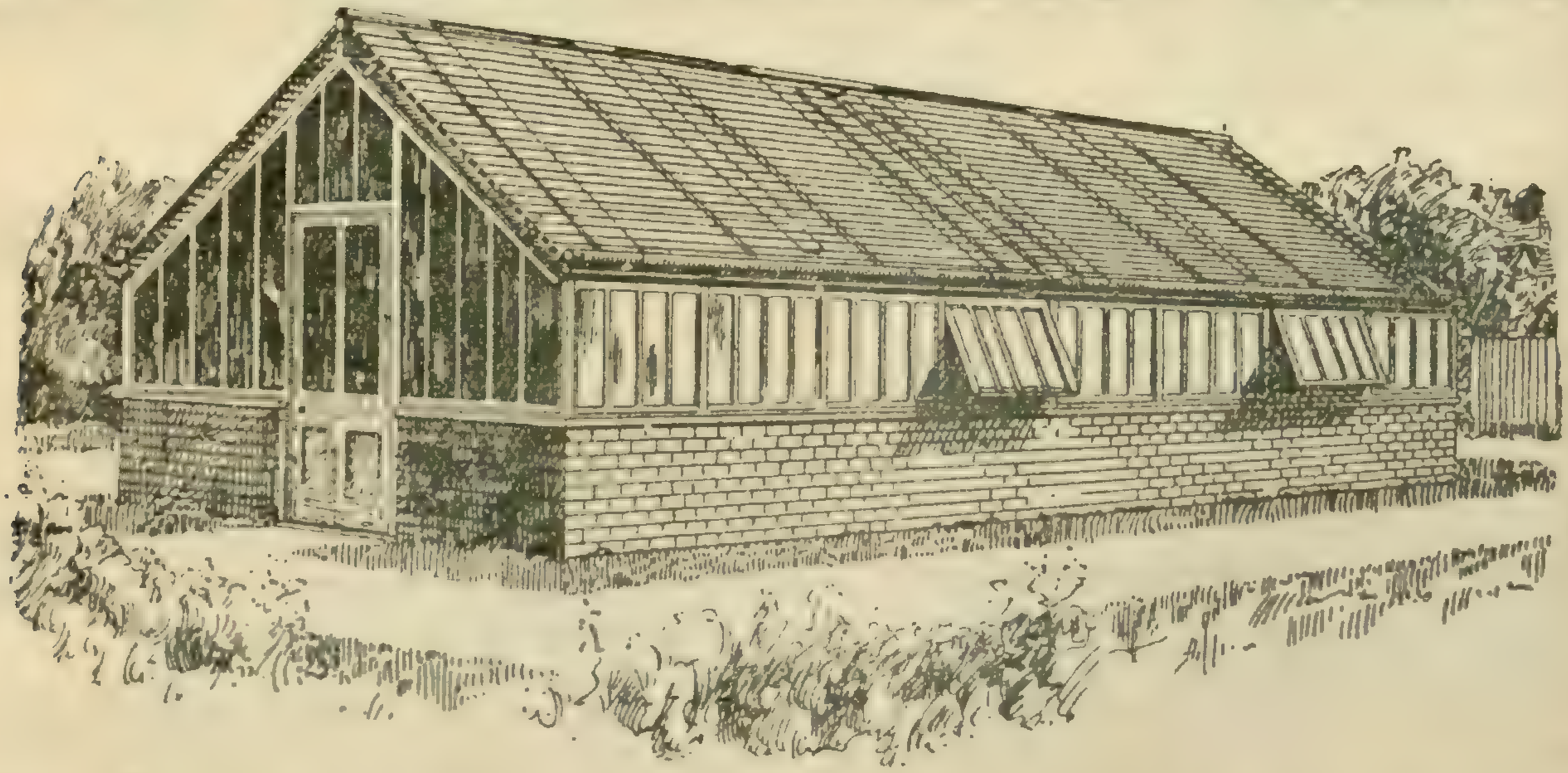

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THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVII.] *JUNE*, 1909. [No. 198.

DIES ORCHIDIANI.

I INTENDED to commence my remarks this month with something about the Temple Show, and was impressed with the difficulty of saying anything new, when a newspaper cutting obligingly came to hand, which supplied the necessary inspiration.

The exhibition of Orchids, it remarks, was more marvellous than ever. To bring it together the tropical forests of the globe had been ransacked, and the resources of scientific horticulture taxed to the uttermost. An expert told our representative that £50,000 would not purchase the collection. One group alone would have brought in at least £20,000 if put up to auction.

One of the novelties which attracted attention was a little brownish red flower (officially described as violet-purple in colour), with the ponderous name of Odontoglossum crispum Minoru. There is one bloom of the kind in the world: it measures one a half inches from tip to tip of the petals and is priced at 250 guineas. After ceaseless care on the part of its rearer, the "Minoru" blossomed four days ago, and was immediately named after the King's horse in this year's Derby. Its distinctive feature is the deep marking of petals and sepals.

Near this modest blossom was shown yesterday a much more showy Orchid—the Cattleya Mossiæ Edward VII., an entirely new importation from Peru, which displays a rich golden throat in the midst of petals of a brilliant pink.

Orchid growers were paying high prices for new hybrids during the day. One insignificant-looking flower of medium size, named the Læliocattleya Eurylochus, and remarkable for its warm brick-red tint and crimson lip, had the luck to be sold three times over in almost as many minutes. The first purchaser was a Belgian gentleman, who spends some £15,000 a year upon his hobby. He was so struck by the Eurylochus that, without a moment's delay, he told the Continental representative of the grower to book it in his name. Immediately afterwards Colonel Holford, a well-known Orchid expert, purchased the same plant from the grower himself,

who was unaware of the earlier transaction owing to the absence of the usual "sold" peg. Hardly had Colonel Holford passed out of sight when Sir Trevor Lawrence, President of the Royal Horticultural Society, noticed the new hybrid, and a third sale was effected by the grower's manager, who was, of course, ignorant of the previous sales. Who owns the only Lælio-cattleya Eurylochus in existence was subsequently the matter of consider-able discussion.

Another short cutting sent to me explains that the most novel blooms at the show were two new Orchids, one of which obligingly opened its first flowers last week, and is known as the Odontioda crispum Minoru.

I can scarcely improve on that, and I wonder what those three gentle-men think of the idea that the Eurylochus is an "insignificant-looking flower," not to mention the Orchid Committee who gave it the award of a First-class Certificate. But there is no accounting for taste.

A point that struck me about the Show was the large number of hand-somely blotched Odontoglossums present in most of the groups, which shows not only the increasing popularity of these delightful cool-growing Orchids, but also the freedom with which they can now be raised from seed. The number of brilliant little Odontiodas was also remarkable, and I could not help reflecting on the fact that it was at the corresponding meeting five years ago that the first of them put in an appearance, and created such a sensation. Someone remarked in my hearing that there was nothing sensational this year. No! we are getting used to them, which makes all the difference, but the amount of progress is none the less striking, and the next few years may witness some further remarkable developments.

It has been remarked that the limited space at the Temple affords little opportunity for artistic effect, and no doubt this is the case, but a marked improvement was noticed in the arrangement of several of the groups, which were diversified by mounds and dells in a very pleasing manner, forming a great improvement on the flat banks of flower of a few years ago. Exhibitors, for the most part, made the best use of their opportunities, though there was a little overcrowding in places, which is, perhaps, unavoidable.

The Society has a rule, which is printed in large type in the arrange-ments, that PLANTS MUST BE NAMED, but I think one or two of the exhibitors must have overlooked it. At all events it was not carried out in a few cases, and I heard complaints in consequence. It may not be practicable or necessary to label all well-known plants, but novelties or rarities should

be named, at all events when the names are known. The remarks in the present case apply chiefly to a number of hybrids of which neither names nor parentage were given, a condition of things which it ought to be possible to remedy. Hybrids are now so numerous, and their parentage is becoming so complex, that unless some clue to the origin of their plants is given by the exhibitor it is almost impossible for the reporter to do them justice, and I believe that for this reason some interesting novelties have sometimes been overlooked.

Horticulturally the Show was a great success, and the quality of the Orchids generally was well up to the average, while evidence of progress, so far as hybrids are concerned, was met with on all hands. Such a show entails an enormous amount of work on both officials and exhibitors, to whom the thanks of all who witness these beautiful displays will be accorded. A report was current that this might be the last of the series at the Temple, but let us hope it may prove incorrect, for, in spite of its limited area, it would be difficult to find another locality equally suitable in every respect.

ARGUS.

CALENDAR OF OPERATIONS FOR JUNE.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

CALANTHES.—Plants that are making strong growths and have filled their pots with roots should be top-dressed with some good turfy loam and cow manure, which will give them great assistance in making up their bulbs. They like plenty of water during their growing season, and alternate waterings may be given with liquid manure water until the bulbs are made up. Ventilate the house each day if possible, to prevent spot in the leaves, which latter should be examined occasionally to keep them clear of scale, as when grown with stove plants they will sometimes get scale on them, and if this is not cleaned off it soon takes all the substance out of the foliage. The leaves must be carefully handled, as they easily bruise. Keep the plants well up to the light; a shelf will suit them best, and they will make much sturdier growths. It is not always the largest bulbs which throw the best spikes, but well-ripened sturdy bulbs will produce strong spikes and well-coloured flowers. The leaves of the evergreen varieties should be kept very clean, as good foliage on them is most important when in flower, especially when used for grouping purposes, for the leaves when in good order are very ornamental. When grouped with other Orchids they help to relieve the flatness of the group. Most of the evergreen varieties are summer flowering.

ANSELLIA AFRICANA and the allied species should now be making growths, and if in need of potting should be seen to as soon as the roots

become active. A. africana is one of the most popular in the class for six Orchids at Shows, and counts for points well, especially when it can be had with a number of spikes on, as its handsomely-blotched flowers attract attention. It is not a difficult subject to grow, and a nice sunny position in the Dendrobium or Cattleya house will suit it first rate. For a potting compost, peat, loam, and leaves, with plenty of crushed crocks, will suit it to perfection. Plenty of room should be left for water, as it likes abundant moisture during the growing season.

SOBRALIAS.—This is a beautiful genus, and the plants themselves are very decorative when kept in good condition. Most of the varieties are summer-flowering, and the stems vary in height from one to six feet. The flowers are very handsome, many being equal to Cattleyas, and S. macrantha alba is very beautiful when perfectly grown and flowered. They are not difficult subjects, and they will grow well at the warm end of the Cattleya house or plant stove, and they will hide an ugly gable end all the year round. The individual flowers do not last long, but they produce several flowers on a stem, one just going over as another is ready to burst and fill its place, which gives them a fairly long flowering season. They like plenty of pot room, as they make a lot of strong fleshy roots, and plenty of space must be left for water, of which an ample supply must be given during the growing season. The leaves must also be kept clean by syringing. They should never be allowed to become parched, as the stems are only reeds, and cannot support themselves for any length of time if dry. Even in dull weather they should be kept just moist, but not saturated. If the leaves are allowed to drop they are very unsightly, and will make stunted growths the following season. They should not be disturbed unless the compost is sour, or likely to go sour before another year, as they object to being disturbed, and care must be taken not to break more roots than is really necessary. When breaking up specimen plants and re-making, all the small pieces can be potted in small pots, and shifted on as they fill the pots with roots. They then soon make specimen plants, and the strong pieces get the advantage of more growing space. A compost of loam, leaves and peat, with plenty of crocks and charcoal, will make a good growing mixture for them. The pots should be well crocked, to allow of a quick drainage. Keep them well syringed several times a day for a time after repotting, as it helps to keep the foliage from dropping.

STANHOPEAS, as they pass out of flower, should be examined and potted or top-dressed. They are better grown in baskets on account of their pendulous spikes. Their remarkable flowers are always interesting, and most of them are highly scented, and though not pleasant to everyone, they are well worth growing. During their growing season they like a stove temperature, and when the growths are made up the plants can be removed

to the Cattleya house for the resting season. During the growing season abundance of water must be given, and the leaves should be kept well syringed, as they are rather subject to red spider. When at rest just sufficient water should be given to keep the bulbs plump. A compost of Osmunda fibre, leaves, and a little moss will suit them. Give them room in the baskets to grow for at least two seasons without disturbing them again, and remove any useless back bulbs, which can be propagated if needed, provided that they have a dormant eye. Turn the young growth inwards, so that it does not go over the edge of the basket the first season.

PERISTERIA ELATA, or the Dove Orchid as it is commonly called, is very remarkable, as the column and lip, with a slight stretch of imagination, can be described as resembling a dove. The flowers are thrown up on long stems well above the foliage, and make a beautiful show, lasting well in flower. The plants should be potted when the young growth is about half grown, care being taken not to break the roots more than is absolutely necessary. It takes a long time to get the roots apart, but it repays any extra labour expended by making a fine plant the first season after potting. Where specimens are required five or six plants should be potted together, allowing ample room, so that they will not require potting again for several seasons. Remove all useless back bulbs, leaving about two behind the young growth. They will produce enormous bulbs when well grown, and make fine specimens in a short time. The species likes stove treatment when growing, and plenty of water; with a sunny position in the Cattleya or Dendrobium house during the resting season, and very little water until the flower spikes begin to show. Just enough should be given to keep the bulbs plump. For a potting compost use loam and peat in about equal parts, adding a few leaves and plenty of crocks and charcoal, broken small, to keep it porous. Liquid manure, given in the growing season about twice weekly, will help to make fine plants, and keep the leaves a nice colour.

MAXILLARIA SANDERIANA, the finest of all the Maxillarias, will be flowering or just past flowering, and should be potted or top-dressed as soon as it starts to grow. Baskets are better than pots for it, as they allow the flowers to push through the sides and bottom of the baskets; it also shows to better advantage when grown and suspended from the roof. The flowers are striking, and when staged among Cattleyas it quite outshines them in beauty, and also holds itself well. The plant requires an intermediate temperature, or the cool end of the Cattleya house will suit it. Plenty of water should be given during the growing season, and just sufficient to keep the bulbs plump during the resting period. The leaves should also be well syringed during the growing season. Osmunda fibre, leaves, and a little moss, with plenty of small crocks mixed in, will make a good compost. The plants should be placed in a moist, well shaded position till

they get well established, when they can be put into their growing quarters. They like a fair amount of sunshine and plenty of air ; if they are grown soft the leaves will spot.

DENDROBIUMS will be growing rapidly now, and the young growths will need a little support. If allowed to break down with overweight of the bulbs they will be checked in growth, and are always unsightly afterwards. They do not need to be staked up straight, but just supported by raffia ties to keep the bulbs from breaking, as many growers prefer to see them hanging over the sides of the basket or pans.

CATTLEYAS and LÆLIAS will also need looking over, and the young growths supporting, a sharp look-out for scale being kept at the same time. It is often a puzzle how scale gets inside the young growths, but however it gets there it must be removed as quickly as possible, or it will mark the young leaves. Soft soap and warm water applied with a soft brush and sponge, will easily remove it.

CYPRIPEDIUMS will be growing freely, and should be given plenty of moisture, both in the atmosphere and at the roots. Syringe freely, as it will keep them free from thrip, and help them to make strong clean growths.

VENTILATE all the houses freely, and leave a little air on all night whenever it has been a hot day, as it revives the plants wonderfully, and prevents them from making soft growth. In damp weather it will be better to use a little extra fire heat, and ventilate at the same time, rather than keep the houses at all stuffy, as that is the chief cause of spot on the foliage. Keep all soft growing plants well shaded for the next month, as the young leaves are very tender, and easily get scorched, and are always an eyesore afterwards.

OBITUARY.

NORMAN C. COOKSON.—It is with deep regret that we have to announce the death, on May 15th last, of Mr. Norman C. Cookson, of Oakwood, Wylam-on-Tyne, in his 69th year, after an illness of some weeks' duration. Mr. Cookson was an enthusiastic Orchidist, and during a residence of 30 years at Oakwood Grange has raised many fine hybrids belonging to various genera. He is said to have commenced hybridising the genus Calanthe as early as 1880, and among his earliest successes were C. × Alexandri and C. × Cooksoni, which were certificated by the R.H.S. on October 27th, 1885. They were raised from C. vestita and C. × Veitchii, and are now considered to be forms of the earlier C. × Sedeni. Other genera were quickly taken in hand, and we find Cypripedium × Io (Argus × Lawrenceanum) recorded in 1886, C. × auroreum and C. × almum in 1887, C. × Godseffianum and Selenipedium × nitidissimum in 1888, C. × Pitcherianum

and Masdevallia × Courtauldiana in 1889, Phaius × Cooksoni, Dendrobium × Venus, D. × Cassiope and Cypripedium × Doris in 1890, C. × Bryani and Læliocattleya Phœbe in 1892, Cattleya × Harold and C. × William Murray in 1893, Odontoglossum × crispo-Hallii in 1898, with numerous later hybrids of excellent quality.

Mr. Cookson followed his work up with all the instincts of a breeder, and some of his hybrid Calanthes show a remarkable brilliance of colouring. For example, one called C. × Oakwood Ruby, which is said to have been raised from C. × Sedeni Oakwood var., twice re-crossed with C. vestita rubro-oculata, and flowered in 1898, is of a brilliant ruby crimson, and this in turn, united with C. × William Murray, gave the dark C. × atrorubens. Phaius was evidently a favourite genus with Mr. Cookson, and he used both the handsome Madagascar species, P. simulans and P. Humblotii, with great success. The former united with P. Wallichii gave P. × Cooksoni and its variety Norman, which re-crossed with both the original parents, gave the secondary hybrids, P. × Clive and P. × Harold, while with P. Humblotii it gave the handsome P. × oakwoodiensis, P. Humblotii with P. grandifolius had already given P. × Cooksonæ, in 1895, and with P. Wallichii it yielded P. × Phœbe, in 1899, and these hybrids re-crossed with P. Humblotii gave, respectively, P. × Ruby, in 1902, and P. × Chapmanii a year later. With Dendrobium also Mr. Cookson was very successful, the only hybrids of D. albosanguineum, D. bigibbum, and D. Maccarthiæ—known respectively as D. × Murrayi, D. × Sybil, and D. × Kenneth—being raised by him, together with D. × Astræa, × Bryan, × Doris, × Harold, and × Lotus.

Specially interesting events at Oakwood were the raising of Cypripedium insigne Sanderæ and C. Lawrenceanum Hyeanum true from seed, also the experiment which proved the parentage of the natural hybrid, Cattleya × Hardyana, the artificially-raised plant flowering there in 1896.

Of late years Mr. Cookson has turned his attention to the genus Odontoglossum, and some choice hybrids between O. crispum and O. Pescatorei have already flowered. He has also got together a very fine series of the choicest blotched forms of Odontoglossum crispum.

The first Orchid named after Mr. Cookson, we believe, was Dendrobium nobile Cooksonianum, described by Reichenbach in 1885, but it had been sent by Mr. Cookson two years previously (*Gard. Chron.*, 1883, i. p. 630), when Reichenbach called it a flower of D. nobile, "showing lips in lieu of petals," and it was remarked that the plant had produced such flowers for three years.

Mr. Cookson has been for many years a member of the Orchid Committee of the R.H.S., and for more than six one of its Vice-Chairmen, and his lamented death leaves a vacancy on that body.

SEEDS OF CYCNOCHES CHLOROCHILON.

THE following interesting account of the contents of a capsule of Cynoches chlorochilon, containing the enormous number of nearly four million seeds, appears in a recent issue of the *Kew Bulletin*.

"In March, 1896, a seed capsule of Cycnoches chlorochilon, Klotzsch, was obtained from Messrs. Hugh Low & Co. for preservation. It was fully developed, and had been cut from a recently imported plant. A drawing was made, after which the capsule was cut longitudinally for convenience of drying, and the number of seeds proved so enormous that they were submitted to Dr. Scott, then honorary keeper of the Jodrell Laboratory, with a view of ascertaining their approximate number."

The report we may summarise, but it showed the number of seeds in the capsule to be about $3\frac{3}{4}$ millions, the result being arrived at by weighing the mass of seeds, then weighing about 300 seeds separately, and calculating from these data the total number, which was approximately 3,770,000. I is added :—

"'This is itself only a rough approximation, and as you said some seeds had been lost in opening the capsule you might take the total number at about four millions. In other words, the progeny of this single flower, if all the seeds came up, would be about equal to the population of London.

"'The weight of each seed works out to the very minute figure of .0000036 grammes. About 300,000 seeds to the gramme (very roughly).'

"This is much in excess of figures previously recorded for Orchid capsules. Darwin estimated the number of seeds in a capsule of Orchis maculata as about 6,200, and Mr. J. Scott, of the Royal Botanic Garden, Edinburgh, calculated the number of seeds in a capsule of Acropera as 371,250, while F. Mueller informed Darwin that he found about 1,758,440 seeds in the capsule of a Maxillaria in South Brazil. The seeds weighed $42\frac{1}{2}$ grains, and he estimated the number by arranging half a grain of seed in a narrow line, and then counting a measured length. He adds that the same plant sometimes produces half a dozen capsules. It may be added that the capsule of Cycnoches chlorochilon under notice measured six inches long by two inches broad. The sexes are separate, and the female flowers so far as known are solitary, but the males are borne several together in a raceme."—R. A. R.

SMALL ORCHID HOUSES.—We are informed that there are many very small Orchid collections in the neighbourhood of Manchester, some of them in quite tiny home-built houses, whose owners are at work during the day. We should much like to publish an account of such a house and its contents, if anyone will kindly forward the necessary particulars.

ODONTONIA ELWOODII.

THE annexed figure shows a very interesting and attractive hybrid, which was raised by Messrs. Charlesworth & Co., from Odontoglossum cirrhosum crossed with the pollen of Miltonia Rœzlii alba, and was exhibited by them at a meeting of the R.H.S. on February 12th, 1907. It was described at page 90 of our fifteenth volume. The photograph was recently forwarded to us by Messrs. Charlesworth, and is reproduced natural size. As will be

Fig. 13. ODONTONIA ELWOODII.

seen by the figure, the flowers have taken much of the general shape of the seed parent, the sepals and petals being rather narrow and acuminate, but the lip is considerably dilated, in which the influence of the pollen parent is seen. The general habit, and short, few-flowered inflorescence also show much of the same influence, though this may not be so apparent when the plant becomes stronger. The colour of the flower is white, with a few purple spots on the lip.

ORCHIDS AT HAYWARDS HEATH.

FOR several years Messrs. Charlesworth & Co. had a small establishment at Haywards Heath, Sussex, in addition to their Bradford establishment, and as it became increasingly evident that the climatic conditions of the former locality were much superior for Orchid culture, they decided to lay out an entirely new nursery there, to which the plants were all removed last autumn. The old nursery at Haywards Heath has also been relinquished, and the business is now conducted entirely from the new establishment, which we have just had the pleasure of seeing.

The houses are built with all the latest improvements, and very conveniently arranged. A glass covered corridor of 250 feet long by 12 feet wide extends from the office—which has a 45 feet frontage—back to the potting shed, and the last 160 feet has glass covered sides, and from this portion extend, right and left, twelve houses, each 100 feet long, and of varying widths, according to the purposes for which they are intended. The widths are 12, 13, 20, and 21½ feet, there being three of each. The packing shed measures 75 by 20 feet, the potting shed 80 by 20, and there is a photographic studio 20 feet square. There is also a block of eight seedling houses, each 100 feet long, extending right and left from a second corridor, one of these being 18 feet wide, and the rest 10 and 11 feet. The potting shed attached to this block measures 15 by 18 feet, and at the end of the potting shed are two other houses, each 25 by 18 feet.

Ample provision has been made for a supply of rain water, large tanks being built across the ranges of houses, with openings under the stages of each, so that the supply is accessible from every point. The roofs form an ample collecting ground for the rainfall. Lath roller blinds running lengthways are fixed well above the glass roof, so as to allow an ample current of air beneath, but in bright weather this is found insufficient, and a layer of tiffany is laid on the glass itself, so as to form a double shading. As a temporary provision some of the glass has been whitewashed, but it is intended ultimately to use tiffany for this purpose. Top and side ventilation is provided, the latter by shutters opening outwards, worked by a handle from the interior, so that the proper amount of ventilation can be adjusted without going outside. The operator feels in a moment the current of air coming into the house, and can adjust the shutter accordingly, a very ingenious contrivance. In short, the whole arrangements have been made with a view to secure a constant healthy atmosphere in the houses, which is the chief secret of successful Orchid cultivation. But it is time to come to the plants themselves, and in this we must follow the order of our notes.

The first house entered contained a lot of plants which may be described as Cool Intermediate, requiring a minimum of about 60° at night. Here we

saw a lot of Trichopilia suavis and Backhouseana, some three dozen of the latter making a very fine display. Warscewiczella discolor was also in bloom. This genus and its allies are said to succeed in this house, when heavily shaded, this being an important point in their culture, for they are shade-loving plants. Maxillaria Sanderiana does specially well, also Eriopsis rutidobulbon, while Odontoglossum Harryanum, a plant which would not grow at Bradford, was making great progress. We noted a lot of Odontoglossum Uroskinneri and hastilabium in bloom, with a few Aspasia epidendroides, a batch of Ornithidium Sophronitis producing its pretty scarlet flowers, Ornithocephalus grandiflorus with four spikes, a few good Restrepia maculata, Masdevallia macrura, bella, triaristella, trichæte, and others, some good plants of that little gem, Pleurothallis ornata, and Octomeria diaphana flowering very freely. There were pointed out some plants of Odontoglossum cirrhosum crossed with the pollen of O. Uroskinneri, but they do not thrive, as they seem susceptible to some fungus. It was remarked that in every other case O. Uroskinneri was used as the seed parent. We noted also a lot of Miltonia vexillaria, one being very rich in colour, a batch of M. Phalænopsis which was growing very well, a plant of M. flavescens in bloom, and a batch of M. × Hyeana (Bleuana × vexillaria Leopoldi), including some good forms.

Passing into a Cool house, where a minimum of 52° is adopted, we found a nice lot of Epidendrum Wallisii in bloom, showing much variation in the amount of spotting, a fine Brassia brachiata, a good plant of Oncidium graminifolium in bloom, and a small batch of O. Claesii suspended from the roof and doing very well. The majority of the plants, however, were Odontoglossums, and we noted a lot of good O. crispum and O. cirrhosum, with a large plant of O. × Coradinei, a fine O. luteopurpureum hystrix with nineteen flowers on a spike, and numerous others which we must omit.

The next was an Odontoglossum house, all seedlings. Here we noted a lot of O. × Wilckeanum, raised from an unblotched form of O. crispum crossed with O. luteopurpureum Vuylstekeanum, but all the seedlings came spotted. Here, too, were a number ol O. × armainvillierense xanthotes, raised from O. crispum xanthotes and O. Pescatorei album, the entire batch being albinos like the parents, with all the markings yellow. A number were in bloom, but the others could easily be picked out by the pale foliage. A lot of O. × excellens were raised here, with O. triumphans as the seed parent. We noted fine batches of O. × Rolfeæ and O. × Othello, both sturdy growers, some good O. × concinnum and × warnhamense, both varying much, and one robust plant of the latter bearing two spikes, the best with fifteen side branches. There were also good examples of O. × Lambeauianum, O. × spectabile, and others, with the charming little hybrids Odontioda Bradshawiæ, heatonensis and Lutetia.

We then passed into an Intermediate house, about half devoted to Dendrobiums, and including D. superbum, thyrsiflorum, pulchellum, chrysotoxum, and others in bloom. The remainder included miscellaneous subjects, and we noticed Oncidium luridum, the handsome Spathoglottis × Colmaniæ, and Leptotes bicolor in bloom.

A Cool Intermediate house followed, where we saw some Oncidium concolor and cucullatum in bloom, with a large and handsome mottled form of O. crispum beginning to open. Large batches of the spring and autumn flowering forms of Epidendrum vitellinum were pointed out, a lot of the former being in bloom. It is interesting to note that the latter, which comes from a different district, has a narrower and much more elongated bulb. There were also batches of Nanodes Medusæ and Cochlioda Nœtzliana, a few being in bloom, together with Masdevallia ignea and coccinea, Odontoglossum Cervantesii and Cattleya citrina.

In the next Cool house Odontoglossum Edwardii and many others were growing well, and various Odontoglossums and Odontiodas were in bloom, with plenty of spikes which promise a fine display later on.

The next house was about half devoted to Cypripedes and the rest to the Cattleya group, all being in thriving condition, and among the former we noted a lot of C. × Gowerianium in flower and bud, with a good C. × Gravesianum bearing a spike of three flowers, and examples of C. Haynaldianum, ciliolare and others. Lælia anceps grows well here, but owing to the bright light has to be shaded. A curious hybrid between Lælia tenebrosa and Epidendrum prismatocarpum was in bloom, and the flowers have much of the colour of the former and shape of the latter, though considerably enlarged. The Cattleyas were mostly not in bloom, but were growing well, and a batch of a handsome hybrid between Lælio-cattleya × Gottoiana and Cattleya × Hardyana was pointed out as having produced some fine things. Læliocattleya Duncanii appears to be the original name of this hybrid.

The next two houses were largely devoted to hybrid Cattleyas, and among a lot of plants in bloom we noted some good examples of Brasso-cattleya Veitchii and Brassolælia Helen in bloom, with forms of Lælio-cattleya Wellsiana, Cappei, Balliæ, Mercia, Schilleriana and Lydia, and some good forms of Cattleya × Frederickiæ. The latter is not a good grower. But C. × Octavia, another C. Dowiana hybrid, does well, and was already producing some good sheaths. A plant of the rare Vanda × Maronæ here was doing well.

Then came a house devoted chiefly to the species of Cattleya, with some good C. Skinneri and numerous forms of C. Schrœderæ and Mendelii in bloom, also a flower of C. labiata appearing out of season, which will afford an opportunity for some unusual cross. Some good Lælia purpurata were

also in bloom, and a plant of Ansellia africana was bearing a fine panicle. Some Stanhopeas and other good things were suspended from the roof near the entrance, and we noted Gongora quinquenervis and Cœlogyne Massangeana in bloom.

In the Intermediate house which followed, and which was about half devoted to Vanda cœrulea, in thriving condition, we found a lot of Phaius × Norman in bloom, making a fine display, also the pretty little Vanda cœrulescens, and some Megaclinium falcatum, with plants of various Bulbophyllums. There were also plants of Bartholina pectinata in bud, Disa caulescens, and various other Cape species, including some of the blue-flowered section. It is unfortunate that these Cape species should be so difficult to keep for any length of time, for they are very beautiful objects in their native homes.

The last was a Warm house, where we found a lot of Phalænopsis, with a few P. amabilis and a number of P. Lueddemanniana in bloom. P. × intermedia Portei was in bud, and bearing a fine panicle. There were also many of the brilliant Renanthera Imschootiana, Angræcum modestum, a batch of Oncidium varicosum flowering very freely, the rare Camarotis purpurea, and the beautiful Vanda suavis pallida, in which the spots are greenish yellow in colour. Plants of V. cœrulescens Boxallii and Cymbidium Huttoni were in bud, while some species of Aërides were pushing a few spikes, and among numerous other things which were pointed out were plants of Bulbophyllum Ericssoni, virescens, Reinwardtii and Lobbii, the latter being in bloom.

In the Corridor itself a number of Epidendrums have been planted out, and are being trained to the sides, E. × Boundii and several others being already in bloom. We next proceeded to the second Corridor, and the block of seedling houses, which were even more interesting than the others, but we made no attempt to keep notes of the different houses, and cannot mention a tithe of the interesting crosses that were pointed out. To say that there were thousands of seedlings in every stage of existence is only a mild way of putting it, but the extent to which hybridising and seedling raising have been carried out by Messrs. Charlesworth is pretty well known though one requires to see it to appreciate it fully. The plants are for the most part pictures of health and vigour, but seedlings of a few remarkable crosses grow very slowly, as if there is some incompatibility between the constitutions of the two parents that retards their progress. Seedlings of Odontoglossum Uroskinneri crossed with crispum grow very well when small, but then do badly, as the spot to which the former is subject makes its appearance, and this is the case with some others derived from this parent.

(To be concluded.)

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on May 4th last, when there was a good display of Orchids, though the usual falling off in the number of exhibits just previous to the Temple Show was noticeable. The awards consisted of four Medals, one First-class Certificate, two Botanical Certificates, and one Cultural Commendation.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), gained a First-class Certificate for Læliocattleya Dr. R. Schiffman Westonbirt var. (C. Mendelii × L.-c. callistoglossa), a large and very beautiful hybrid of perfect shape, having silver-white sepals and petals, slightly veined with mauve, and a broad open lip, crimson purple in front, with a yellow disc and some purple veining in the throat. He also sent the beautiful Odontoglossum × Phœbe Westonbirt var. in excellent condition, O. crispum Muriel, a handsome lilac flower spotted with purple, and having well-fringed petals, and a fine form of O. triumphans.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. White), received a Botanical Certificate for Brassavola Martiana, having erect racemes of white flowers with a fringed lip, and for Epidendrum densiflorum, with a dense inflorescence of green flowers. He also sent Oncidium stramineum, a very rare species with fleshy leaves and straw-coloured flowers.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), received a Cultural Commendation for a splendidly-grown example of Odontoglossum × Andersonianum Crawshayanum.

Miss Edith M. Argles, The Vineyard, Peterborough, sent a well-flowered plant of Dendrobium densiflorum bearing ten spikes. It was brought from Darjeeling eight years ago, and was now flowering for the first time.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent the handsome Odontoglossum × Theodora, which is described at page 149, and Odontioda Charlesworthii Theodora, a brilliantly coloured form, having a tinge of reddish orange on the lip.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), showed the handsome Brassocattleya The Baron (C. × Lord Rothschild × B. Digbyana), a handsome hybrid raised by Messrs. Sander, which received a First-class Certificate in April, 1906 (*O.R.*, xiv. p. 147). The Certificate was confirmed on consideration of the flower being obtained for painting, it not being available on the former occasion.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Læliocattleya Feronia (C. × Enid × L.-c. Haroldiana), having cream-coloured sepals and petals tinged with rose, and a rich purple-crimson lip,

Brassocattleya Pluto, Odontioda Lutetia with a spike of ten flowers, and Zygopetalum × Clarksoni (crinitum × Clayi), a handsome hybrid which was described at page 156.

The Duke of Marlborough, Blenheim Palace (gr. Mr. Hunter), showed a good form of Cypripedium bellatulum and Odontoglossum crispum Dinah, a handsomely blotched form.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent Brassolælia Rosslyn (L. × Latona × B. Digbyana), having flowers suffused and veined with purple on a white ground.

E. de Quincey, Esq., Oakwood, Chislehurst (gr. Mr. Lees), sent Læliocattleya Dorothy Haywood (L. × Pacavia × C. Warneri).

Mr. C. Ravens, Odense, Denmark, sent Cattleya Lueddemanniana Ravens' var., a beautiful white flower veined with purple on the lip.

J. Rutherford, Esq., Beardwood, Blackburn (gr. Mr. Lupton), sent Cattleya intermedia alba, with a few well-grown Læliocattleyas and Odontoglossums, among the latter being O. × amabile Beardwood var., a large white flower handsomely blotched with purple.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cattleya Mendelii majestica, a fine form of the species, and C. M. Thalia, a nearly white flower with some purple veining on the front of the lip.

Gurney Wilson, Esq., Glenthorne, Haywards Heath, showed Oncidium sphacelatum.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a fine group, containing some good Cattleyas and Læliocattleyas, the former including examples of C. intermedia alba and the latter two very distinct forms of L.-c. Ganymede, also some good Lælia purpurata, Phaiocymbidium chardwarense, Dendrobium atroviolaceum, Brassavola Digbyana, Odontoglossum Cervantesii, Scuticaria Hadwenii, Saccolabium micranthum, Epiphronitis Veitchii, Oncidium concolor, Miltonia Roezlii, Bletia Shepherdii, the rare Bulbophyllum Sillemianum, &c.

Messrs. Hugh Low & Co., Bush Hill Park, also received a Silver Flora Medal for a fine group, including some good Dendrobium barbatulum, primulinum, chrysotoxum, and thyrsiflorum, Pleurothallis longissima, Odontoglossum sceptrum Masereelianum and others, some good Cattleya Mendelii, Oncidium pulchellum, the rare Bulbophyllum tremulum, &c.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Banksian Medal for a good group, including white and rose forms of Odontoglossum crispum, O. c. Oakfield Sunrise, a fine O. × Lambeauianum, O × Andersonianum, Cymbidium × eburneo-Lowianum concolor, C. insigne, some good Cattleya Mendelii, C. intermedia alba, &c.

M. Maurice Mertens, Ghent, also received a Silver Flora Medal for a small group of good hybrid Odontoglossums.

Messrs. Wm. Bull & Sons, Chelsea, sent a plant of Odontioda Vuylstekeæ with a spike of five flowers, which were not fully expanded.

Messrs. Charlesworth & Co., Haywards Heath, staged a small group of choice Orchids, including a very fine blotched seedling form of Odontoglossum crispum, the beautiful O. × armainvillierense xanthotes, Brassocattleya Veitchii, Læliocattleya Ballii, L.-c. Elinor, Trichopilia suavis, Masdevallia bella, Bifrenaria Hadwenii, Cypripedium × Edithæ, C. Argus, the pure white Aërides virens Sanderæ, Cattleya × Frederickiæ, &c.

Mr. A. W. Jensen, Lindfield, Haywards Heath, showed a splendidly grown specimen of Cattleya Mendelii bearing 96 flowers.

At the meeting held on May 18th the Orchid exhibits were few in number, and the awards were limited to one First-class Certificate and one medal.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), received a First-class Certificate for Odontioda Vuylstekeæ Crawshayanum (C. Nœtzliana × O. Pescatorei), a very handsome form, having the flowers of a nearly uniform scarlet red, with the crest yellow. The absence of blotching rendered it very distinct from the original form. He also sent the charming Odontoglossum × Nerissa (nævium × crispum), and O. × Valkyrie (Wilckeanum × nevadense), having dark brown sepals and petals, and a large, fringed, white lip, blotched with brown on the lower half.

H. Little, Esq., Baronshalt, Twickenham (gr. Mr. Howard), received a Silver Flora Medal for a fine group of 38 well-bloomed plants of Lælia purpurata, showing much variation, and the more distinct including the varieties bella, picta, rosea, and Russelliana.

J. Foster Alcock, Esq., Exhims, Northchurch, showed a hybrid Cymbidium, said to have been raised from C. elegans and C. Tracyanum, and bearing two cream-coloured flowers on an erect spike.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Odontoglossum × illustre (Vuylstekei × ardentissimum), having claret purple flowers margined with white, and a fine example of Cattleya × Dusseldorfii var. Undine, bearing eight of its chaste white flowers.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt (gr. Mr. Alexander), sent Læliocattleya Zoroaster var. Rex (L. × Latona × L.-c. Canhamiana alba), a fine hybrid having cream yellow flowers, with a violet-purple lip margined with cream colour, a spike of Cymbidium Parishii Sanderæ, bearing five of its handsome white flowers, blotched with purple on the lip, and a remarkable panicle of Odontoglossum Pescatorei bearing 125 flowers.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), sent a plant of Cattleya iricolor (Rchb. f), a very rare species, whose history is given at page 63 of our first volume.

Mr. A. W. Jensen, Lindfield, Haywards Heath, sent a small group of Cattleya Mossiæ, C. Mendelii and Odontoglossum crispum.

M. Maurice Mertens, Mont St. Amand, Ghent, sent a small group of hybrid Odontoglossums.

The late Mr. N. C. Cookson.—The Chairman spoke of the loss sustained by the Committee in the death of Mr. Norman C. Cookson, one of its Vice-Presidents, and a resolution tendering the deep sympathy of the Orchid Committee with Mrs. Cookson and the family was passed, on the motion of Mr. R. Brooman White, seconded by Mr. J. O'Brien.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AT the meeting held on April 29th only a moderate number of plants were exhibited. The following members of the Committee were present:—Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Ward, Cowan, Upjohn, Warburton, Keeling, Holmes, Ashton, Cypher, Parker, and Weathers (Sec.).

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a fine group of plants, which gained a Silver-gilt Medal. It was composed of many rare plants, the principal ones being Cypripedium × Archimedes, C. niveum, C. × aureum, Odontoglossum luteopurpureum var. Vuylstekeanum, O. crispum moortebeekiense, and many fine Lælias and Cattleyas. Awards of Merit were given to Cattleya Mendelii var. Gloria Mundi, and Scuticaria Hadwenii.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), staged a specially fine group of Cypripediums, including the fine C. × majesticum, C. × gigas Corndean Hall var., C. bellatulum album and many others (Silver-gilt Medal). A fine hybrid from C. × Goweri × C. Godefroyæ, named "The Caliph," gained a First-class Certificate, and C. Lawrenceanum var. Juno and C. bellatulum var. Amelia both received Awards of Merit.

R. Ashworth, Esq., Newchurch (gr. Mr. Fletcher), for a group which was divided for "Cup" purposes, gained three Silver Medals, and I noted a small group of well-flowered Cattleya Lawrenceana, Cypripedium Rossetti, Cymbidium insigne, Odontoglossum × Andersonianum magnificum, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), showed an excellent group of Cattleyas, which gained a Silver Medal. The group consisted of many fine forms of C. Mendelii, C. Mossiæ, C. Schrœderæ, and two well flowered plants of Dendrobium Falconeri. Cattleya Schrœderæ var. Diadem received an Award of Merit.

J. H. Craven, Esq., Keighley (gr. Mr. Corney), showed the rare Phragmopedilum caudatum, Miltonia × Bleuana, and Brassocattleya Veitchii.

Ed. Rogerson, Esq., Didsbury (gr. Mr. Price), showed a fine form of Miltonia × Bleuana, and the albino Cattleya Mendelii Rogersoni.

H. Thorp, Esq., Boothroyden, Rhodes, showed two plants of the new Lælia × Rogersii.

Messrs. Cypher, Cheltenham, staged an interesting group, which included Cattleya intermedia alba, C. × Thayeriana, Brassocattleya × Veitchii, Dendrobium albosanguineum, &c.

Mr. J. Robson, Altrincham, gained a Silver Medal for a miscellaneous group of well flowered plants, in which I noted a distinct Cattleya Schrœderæ, several good Odontoglossum Pescatorei, O. crispum, O. × Charlesworthii, &c.

Mr. A. W. Jensen, Lindfield, Sussex, gained Awards of Merit for Odontoglossum crispum Jensenii and Cattleya Mendelii var. Freda.

Mr. J. Birchenall, Alderley Edge, showed a nice group, which included Pleurothallis Birchenallii (First-class Botanical Certificate), Cattleya Mendelii with the lip slate blue in front, and others.

Messrs. Keeling and Sons, Westgate Hill, Bradford, showed Masdevallia Wageneriana, Cypripedium × Yvette var. superbum, and C. × Hartleyanum (Godefroyæ × Chamberlainianum), this latter gaining an Award of Merit.

Mr. W. Shackleton, Great Horton, Bradford, showed a group consisting of Odontoglossum crispum, O. triumphans, and a good Cypripedium callosum.

Mr. Wm. Bolton, Wilderspool, Warrington, showed an excellent type of Cattleya Mendelii.

There was a good exhibition of plants and groups at the meeting held on May 13th. The members of the committee present were: Messrs. E. Ashworth (Chairman), R. Ashworth, Ward, Cowan, Keeling, Warburton, Leemann, Holmes, Ashton, Cypher, Parker, Smith, Thorp, Weathers (Secretary), and, by invitation, Mr. R. A. Rolfe.

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a fine group of well-flowered Cattleyas, Odontoglossums, &c. O. crispum Queen of the North and O. × Triumph, two highly-coloured forms, with O. Pescatorei Warburton's var., a pure white form, all gained First-class Certificates. Cattleya Schrœderæ White Lady and Stanhopea eburnea gained Awards of Merit.

H. J. Bromilow, Esq., Rainhill (gr. Mr. Morgan), again staged a fine group of Cypripediums, including many varieties of C. bellatulum, C. × Caliph, C. × gigas Corndean Hall var., C. × Kitty, &c. (Silver-gilt Medal). C. × tessellatum var. Perfection received an Award of Merit.

Mrs. Armitage, Waterside, Windermere (gr. Mr. Welch), staged a very interesting group, the chief attraction being an excellently-grown series of Cypripedium bellatulum (which received a Cultural Certificate), C. concolor, C. niveum, &c. Brassocattleya × langleyensis Waterside var. gained an

Award of Merit, along with Odontoglossum × Adrianæ Waterside var., a First-class Certificate going to a fine Cypripedium × Alabaster var. Godfrey (Godseffianum × Mons. de Curte). I noted several fine Cattleya Mossiæ, C. Mendelii, &c. (Silver Medal for group).

J. Talbot Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a good group of mixed plants. The distinct Dendrobium Bronckhartii and Angræcum infundibulare both gained Awards of Merit. Bulbophyllum Lobbii gained a First-class Botanical Certificate, and B. tremulum a Second-class ditto. I noted Masdevallia triaristella, Vanda Bensoni var. anchorifera, Cirrhopetalum picturatum, &c. (Silver Medal).

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), showed a group, which gained a Silver Medal. Odontoglossum × Agesilaus, O. crispum Queen of Snow, O. c. Sweetness, and O. × Golden Gem all gained Awards of Merit. I noted also O. c. Princess Ena, O. triumphans Ashworthianum, and many others of good quality.

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a well-flowered group of Odontoglossums, which received a Silver Medal. O. × Brightness and O. × amabile var. Harris both received Awards of Merit. I noted also O. × percultum, O. × Wilckeanum, O. × spectabile, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), received a Silver Medal for a well-flowered group of Cattleyas. C. Mossiæ var. aureum, C. Mendelii Princess Alexandra, and C. M. Excelsior all gained Awards of Merit. I noted also good forms of C. Schrœderæ, Lælia purpurata, &c.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), received a special Vote of Thanks for a fine group of Cypripediums and well-flowered Oncidiums. I noted Cypripedium Argus, C. glaucophyllum, C. Mastersii, C. Lawrenceanum atrorubens, Oncidium ampliatum, Marshallianum, &c.

Herbert Arthur, Esq., Blackburn, received a Silver Medal for a good group, in which I noted Cymbidium × Veitchii, C. tigrinum, a good C. Lowianum, Lycaste Skinneri alba, Cattleya intermedia, &c.

J. E. Williamson, Esq., The Grange, Stretford, staged a nice group, which included Dendrobium nobile Ballianum, D. n. nobilius, D. Pierardii, Chysis bractescens, &c. (Bronze Medal).

Ed. Rogerson, Esq., Didsbury (gr. Mr. Price), received Awards of Merit for Odontoglossum × Beaute-Celeste var. Rogersoni and O. × Stanley. I noted a few good O. crispum, including O. c. xanthotes, O. × Adrianæ, &c.

Messrs. Cypher & Son, Cheltenham, staged well-flowered plants of Cattleya Mossiæ, C. Mendelii, Miltonia vexillaria, Læliocattleya × Ganymede, Cirrhopetalum Wendlandianum, &c. (Silver Medal).

Mr. J. Robson, Altrincham, received a Silver Medal for a good group, which included Phalænopsis amabilis, Cypripedium niveum, C. bellatulum, and many Odontoglossums, Dendrobiums and Cattleyas.

Messrs. Keeling & Sons, Westgate Hill, Bradford, showed Cattleya × Dusseldorfii var. Undine, Restrepia maculata, Masdevallia caudata, M. Wageneriana, M. × Courtauldiana, and other seasonable plants.

Mr. J. Birchenall, Alderley Edge, showed the rare Oncidium Retemeyerianum, Schlimia trifida, Polystacha pubescens, &c.

Messrs. Owen, Northwich, showed varieties of Cattleya Mendelii and Lælia purpurata.

Mr. W. Shackleton, Great Horton, Bradford, received a Cultural Certificate for a well-grown plant of Odontoglossum crispum, bearing over forty flowers.

H. THORP.

THE TEMPLE SHOW.

THE twenty-second annual exhibition of the Royal Horticultural Society in the Inner Temple Gardens was held on Tuesday, May 25th, and two following days, and brought together a very large and brilliant display of Orchids, though without anything very striking in the way of actual novelty. Hybrid Odontoglossums, however, were well represented in several of the groups, and if there was an outstanding feature in the display it was the number of brilliantly-coloured Odontiodas, quite a cluster of them being represented in Messrs. Charlesworth's group, aad a good many others were scattered elsewhere. Three classes on this occasion were set apart for Orchids shown by amateurs, and brought out a good competition. The Sherwood Cup for the best group was won by F. M. Ogilvie, Esq., Oxford, Sir Jeremiah Colman, Bart., being second (Silver Cup). For a group not exceeding seventy-five square feet a Veitch Memorial Medal and £5 was offered, which was won by the Duke of Marlborough, the second prize, a small Silver Cup, going to Mrs. Kershaw Wood, Glossop. For a group not exceeding thirty-five square feet the first prize (a Silver Cup) was not awarded, the second prize, a Silver Flora Medal, going to Richard Ashworth, Esq., Manchester. Other Awards were one Gold and five other Medals, three Silver Cups, five First-class Certificates, one Award of Merit, four Botanical Certificates, and one Cultural Commendation. The Judges for Orchids were Messrs. H. J. Chapman, J. Gurney Fowler, H. Little, and F. Wellesley, and for the special prize classes Messrs. W. P. Bound, De Barri Crawshay, and W. H. White. The weather, which had been previously fine, broke in the night, and the Show opened in a downpour of rain, which cleared up somewhat in the afternoon, to be succeeded by another wet day, which probably had some effect on the attendance. The tents, however, were generally well-filled, and the effect of the cool, damp weather was to keep the plants beautifully fresh to the last. In the following report we have endeavoured to give the salient features of each group, but want of space has prevented us from giving anything like a full report.

F. Menteth Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), staged a magnificent group, nearly two bays in extent, the plants being of high quality and splendidly grown. To it was awarded the Sherwood Cup (value £21), as the best group in the Show staged by an amateur. Prominent in the group were many fine Odontoglossums, a charming arrangement of O. crispum with other species and hybrids occupying the centre, while on one side was a group of over thirty Cypripedium × Maudiæ and on the other side some three dozen C. callosum Sanderæ, giving a very fine effect. Among the plants noted were the brilliant Odontioda Charlesworthii, O. Devossiana, a wholly scarlet form of O. Vuylstekeæ, a fine O. Bradshawiæ, with a second form much variegated with white, and a large salmon-red form with whitish side lobes to the lip, a few fine Miltonia × Bleuana, some good M. vexillaria, a beautiful example of Odontoglossum luteopurpureum Vuylstekeanum, richly-coloured forms of O. × eximium and O. × percultum, Brassia verrucosa, some good examples of Cattleya × Dusseldorfii Undine, C. citrina, a fine C. Skinneri, Dendrobium atroviolaceum, a very fine D. Falconeri, Epidendrum Parkinsonianum, E. × O'Brienianum, Phalænopsis Lueddemanniana, the fine Trichopilia Backhouseana, some very good Lælia purpurata, a few good Cypripedium niveum and C. Godefroyæ leucochilum, and many other good things, the whole being very tastefully arranged.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a remarkably rich and varied group, of about equal extent, in which numerous Cattleyas, Odontoglossums, and Miltonia vexillaria made a brilliant display, backed with examples of the floriferous Epidendrum × Boundii, Dendrobium pulchellum, Cymbidium Lowianum, C. insigne, C. × Colmaniæ, and others, while in the front were clusters of varieties bedded in mounds of moss, so as to bring them well up to the eye. The group was well arranged, with an undulating surface, and was awarded a Silver Cup, gaining also a similar award as the second prize for the best group of Orchids shown by an amateur. Among the showy things noted were some good Odontoglossum crispum varieties, including the blotched forms Colmaniæ, Cooksoni, Surprise, Mrs. F. Peeters, and others, O. × Wilckeanum The Don, with spikes of fourteen and fifteen handsome flowers, a fine O. × Andersonianum, the greenish-yellow O. Hallii var. E. Ashworth, &c., Cattleya Pittiæ, C. intermedia cœrulea, some fine C. Mossiæ, Spathoglottis aurea, Broughtonia sanguinea, Dendrobium Phalænopsis, Brassia brachiata, Renanthera Imschootiana, Epiphronitis Veitchii, Diacrium bicornutum, Cypripedium Argus, Lycaste cruenta, and numerous others, while among the rarer things we noted the beautiful Chondrorhyncha Chestertoni, Cœlogyne ochracea and Parishii, the rare Dendrobium aduncum, D. bicaudatum, Warscewiczella discolor, Cirrhopetalum pulchrum,

the rare South African Lissochilus parviflorus, Pleurothallis astrophora, the rare Masdevallia melanoxantha, M. ephippium, M. cucullata, two little gems in M. triaristella and M. O'Brieniana, Bulbophyllum barbigerum, a good B. Lobbii, Epidiacrium Colmaniæ (B. nodosa × D. bicornutum), &c. An Award of Merit was given to Cattleya Mossiæ Gatton Park var., a very richly-coloured form, of excellent shape and with exceptionally broad petals, and Botanical Certificates to Gongora quinquenervis and the rare Bulbophyllum lemniscatoides, whose history was given at page 46.

His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), was awarded the Veitch Memorial Medal and £5 offered to amateurs for the best group of Orchids not exceeding 75 square feet. A well arranged bank of showy plants was staged, including many good Miltonia vexillaria and Dendrobium thyrsiflorum, with a good selection of Lælia purpurata, L. tenebrosa, a fine Odontoglossum × Rolfeæ, and numerous other Odontoglossums, a fine example of Chysis bractescens, Cattleya citrina, some good C. Mossiæ, Læliocattleya Schilleriana, and other fine things.

Mrs. Kershaw Wood, Moorfield, Glossop (gr. Mr. Gould), obtained the second prize (a small Silver Cup) for a group of well-grown plants, the centre of which was a fine Cymbidium Lowianum with ten spikes. It also included some good Cattleya Mossiæ, Oncidium sarcodes, Miltonia × Bleuana, a fine Phaius Wallichii, Brassia verrucosa, Phalænopsis Schilleriana, Dendrobium atroviolaceum, Ada aurantiaca, Læliocattleya highburiensis, Lælia × Latona and tenebrosa, a fine example of Odontoglossum × excellens, bearing a panicle with ten side branches and a large number of buds, but the majority still unexpanded, O. × Adrianæ with four good spikes, O. Othello and numerous other good Odontoglossums. A Silver Cup was awarded by the Council for Orchids and Gloxinias.

Richard Ashworth, Esq,, Newchurch, Manchester (gr. Mr. Fletcher), was awarded a Silver Flora Medal as the second prize for a group not exceeding 35 square feet (the first prize of a Silver Cup not being awarded). The central object was a remarkably fine and well-flowered specimen of Dendrcbium Victoria-Regina, grown in a ten inch pan, and bearing numerous pseudobulbs, some over a foot long, a Cultural Commendation being deservedly awarded. There were also three good plants of Odontoglossum crispum Black Prince, with very dark spots, O. c. xanthotes, O. c. heliotropium, and other good forms, the handsome O. luteopurpureum Vuylstekeanum, triumphans, × Adrianæ, Pescatorei, Cattleya citrina, C. Warneri, Bulbophyllum Lobbii, Oncidium cucullatum, Cypripedium bellatulum, &c.

Leopold de Rothschild, Esq., Gunnersbury Park, Acton (gr. Mr. Reynolds), showed a remarkably fine group of Vanda teres, about 80 square

feet in extent, and very profusely flowered, the excellence of which was recognised by the award of a Silver Cup.

Mrs. A. Chalmers, Bromley, Kent, sent a good plant of Dendrobium lituiflorum, with two flowering pseudo-bulbs, the best bearing about 16 racemes.

M. S. Cooke, Esq., Kingston Hall (gr. Mr. Budall), sent a hybrid Odontoglossum bearing a spike with four side branches and about 28 flowers. It was called O. × mulus, but the flowers were much larger than the ordinary form, and presented some features of O. × Wilckeanum. The flowers were yellow well blotched with brown, and the lip showed distinctly the luteopurpureum crest.

The executors of the late Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. Chapman), sent Odontioda Cooksonæ (C. Nœtzliana × O. ardentissimum), a pretty orange-scarlet flower, with a rosy margin which was separated from the body colour by a narrow yellow line, O. Bradshawiæ Cookson's var., a very pretty flower of an almost uniform orange-red, Odontoglossum × percultum Clive (Rolfeæ × ardentissimum), a well-blotched and richly coloured form, O. × Cooksonianum (mirificum × crispum), most like a well-blotched form of the latter, and O. × Solon Cookson's var. (Adrianæ × ardentissimum), fairly intermediate in shape, colour and markings.

Messrs. Charlesworth & Co., Haywards Heath, staged a magnificent group, remarkable alike for quality and culture, to which a Gold Medal was awarded. It was specially remarkable for the number of fine hybrids it contained, foremost among which we may mention a charming little cluster of Odontiodas near the centre of the group, which included the brilliant O. Charlesworthii, O. × Lutetia, O. heatonensis, and several forms of O. Vuylstekeæ and O. Bradshawiæ, showing considerable variation in colour and markings, and not always easy to distinguish. Odontoglossums included many excellent O. crispum, typical and blotched, the latter a beautiful series of home-raised seedlings, O. Pescatorei Charlesworthii, some richly coloured forms of O. × Lambeauianum and × percultum, the charming O. × armainvillierense xanthotes, O. × Othello Golden Glow, a beautiful yellow, well-spotted form of excellent shape, O. × Phœbe, O. × Thompsonianum, O. × hibernicum, the pretty O. crispum Queen Maud, having a spike of 17 flowers, whose small lip and curiously blotched petals suggest some peliorate condition, some fine forms of Cattleya Mendelii and Mossiæ, including the beautiful C. Mossiæ Wageneri, a fine plant of C. Skinneri, and others, some excellent Læliocattleya Fascinator, Feronia, Golden Glow, Canhamiana, Elinor and others. We noted also some good Miltonia vexillaria, the fine Trichopilia Backhouseana, Lælia purpurata, Oncidium luridum, O. Brienianum, Sobralia xantholeuca, Dendrobium

× polyphlebium, Phalænopsis amabilis, Cymbidium Huttoni, Devonianum and insigne, Ornithocephalus grandiflorus, Aërides Houlletianum, Stanhopea bucephalus, Gomesa foliosa, some good Epidendrum vitellinum, Renanthera Imschootiana, Vanda suavis pallida, Dendrochilum cornutum, Ansellia africana, Cochlioda Nœtzliana, and many other fine things. First-class Certificates were given to Oncidium Charlesworthii, most like a fine dark form of O. crispum, with some yellow marbling on the flower, and the base of the lip bright yellow blotched with brown, also to Læliocattleya Eurylochus (C. granulosa Schofieldiana × L.-c. Lady Miller), a very beautiful thing, having flowers of compact shape and of a glowing orange-red, with the front of the lip rosy-crimson, and the tube bronzy yellow. The spike bore four flowers, and we understand that other forms from the same capsule were of very little decorative value.

Messrs. Armstrong & Brown, Tunbridge Wells, staged a very beautiful group of about two bays in extent, the surface being very pleasingly broken up by two deep dells, which gave a very charming effect. A Silver Cup was awarded. The centre was made up with a beautiful series of Odonto-glossums, diversified with brilliantly coloured Masdevallias, Miltonia vexillaria and other good things, while in the dells we noticed a nice lot of Cypripedium glaucophyllum, bellatulum, niveum and other Cypripedes, Cattleyas, Sophronitis grandiflora, Lælia majalis, Trichopilia tortilis, and numerous other things, the larger plants being arranged at the sides and back of the group. Several plants of the handsome Brassocattleya Veitchii, made a nice display, and one of them, out of the same capsule, was bright rose colour, while close by stood the two parents, forming a very attractive group. Near by was B.-c. Thorntoni and B.-c. Wellesleyæ Leyswood var., with two fine blush white flowers. We noted also the fine Cattleya Skinneri Temple's var., exceptionally fine and rich in colour, the chaste C. S. alba, a handsome Odontoglossum × percultum, O. × Andersonianum leopardinum with four spikes, O. × Armstrongiæ, a fine hybrid of unrecorded parentage, having white flowers regularly blotched with violet purple, a lot of good O. crispum, including a fine O. c. roseum, some well-flowered Dendrobium nobile virginale, D. Dearei, Bulbophyllum barbigerum, some good Læliocattleya Aphrodite, L.-c. Mercia, and others, the striking Cœlogyne pandurata, and an allied form which was intro-duced with it, Cymbidium Lowianum concolor, Lycaste Lawrenceana, Cypripedium Mastersianum, a fine C. × callo-Rothschildianum, with a spike nearly three feet high and bearing four flowers, C. Gratrixianum, and other good things.

Messrs. Sander and Sons, St. Albans, also staged a very rich and varied group of about two bays in extent, and the surface diversified with several elevated mounds and dell-like depressions, giving a very picturesque effect.

It contained a brilliant series of Cattleyas, Læliocattleyas, Odontoglossums and other showy things, the central object being a well-grown plant of the remarkable Odontoglossum crispum solum, bearing a spike of 14 splendidly developed flowers, the white sepals and petals, with an occasional spot, setting off the deep claret-red lip to great advantage. Among the numerous fine things noted were many good O. crispum, including some home-raised blotched forms, O. × Lambeauianum, O. × Helicon (excellens × harvengtense), a pretty intermediate form, some good forms of O. × Adrianæ, O.

Fig. 14. ODONTOGLOSSUM CRISPUM SOLUM.

× Nysa (Hunnewellianum × triumphans), a pretty hybrid from O. × Adrianæ × Rolfeæ, called O. × tigrinum, having yellow flowers very regularly blotched with red-brown, two fine plants of Odontioda Devossiana, two pretty forms of O. chelseiensis (C. vulcanicum × O. crispum), Masdevallia coccinea, × Pourbaixii, Arminii, and others, Warscewiczella discolor, Oncidium concolor, O. Marshallianum, O. micropogon, Maxillaria Sanderiana and Houtteana, the rare Vanda Parishii Marriotiana, V. teres, Cochlioda sanguinea, a very fine example of Cyrtopodium punctatum some

handsome Brassocattleyas, the beautiful Cattleya × Dusseldorfii Undine, C. Niobe Sander's var., well-flowered examples of Dendrobium densiflorum and D. crepidatum, Brassocattleya Veitchii, and the beautiful white variety Queen Alexandra, Acanthophippium javanicum, Lælia majalis, Ornithochilus fuscus, Scaphosepalum ochthodes, Miltonia Weltoni, Epidendrum aromaticum, Eria longispicata, Cypripedium niveum, bellatulum, Godefroyæ, Mastersianum, Sophrolælia Danæ superba, some good Miltonia vexillaria, M. × Bleuana Mrs. F. Sander, a beautiful white flower with some rosy lines on the lip, and many other good things. A Silver Cup was awarded for Orchids and Foliage plants.

Messrs. Hugh Low & Co., Bush Hill Park, staged a fine group, over a bay in extent, in which Cattleya Mossiæ, Mendelii and others were conspicuous. Among interesting things noted were the chaste C. Skinneri alba, C. Mossiæ alba, some good Oncidium Marshallianum and sarcodes, the rare O. pulchellum, O. macranthum, maculatum, phymatochilum, and unicorne, Diacrium bicornutum, Odontoglossum Cervantesii, and others, the rare Bulbophyllum Sillemianum, Dendrobium ochreatum and chrysotoxum, Gongora nigrita with two fine spikes, Cirrhopetalum Mastersianum and Collettii, Dendrochilum latifolium, Cochlioda Nœtzliana, Zygopetalum crinitum, Epidendrum vitellinum, Spathoglottis × Veitchii, Cypripedium niveum, C. bellatulum, C. Lawrenceanum hackbridgense, C. × chrysotoxum Victor, and other good forms. A Silver Gilt Medal was awarded.

Messrs. J. W. Moore, Ltd., Rawdon, Leeds, also received a Silver-gilt Flora Medal for a well-arranged group of about a bay in extent, and containing many fine Orchids, some of which were arranged on moss-covered supports. It contained a number of good Phalænopsis amabilis Rimestadiana, arranged at the back of the group, with good examples of Oncidium Marshallianum on either side. The Cattleyas and Odontoglossums were excellent, the latter including some good forms of O. crispum, a particularly fine O. × Rolfeæ, handsomely marked forms of O. × Ossulstoni and × percultum, O. × spectabile with two good spikes, O. × armainvillierense xanthotes, O. × Wilckeanum, Cochlioda Nœtzliana, a good Odontioda Bradshawiæ, Cattleya citrina, some good C. Mendelii, Dendrobium atroviolaceum, Epidendrum vitellinum, some good E. Wallisii, Bifrenaria Harrisonæ pubigera, a good example of Anguloa Clowesii, Lycaste lasioglossa, Renanthera Imschootiana, the handsome Disa × Luna, Cymbidium insigne, the rare Vanda pumila, Stelis Miersii, Oncidium Krameri, O. Batemannianum, Trichopilia Backhouseana, the rare Galeandra lacustris, Leptotes bicolor, and numerous others.

Messrs. Wm. Bull & Sons, Chelsea, received a Silver-gilt Banksian Medal for a bright and attractive group, in which good forms of Cattleya Mossiæ and Mendelii, Lælia purpurata and Odontoglossums were conspicuous.

We noted a very fine O. × Wilckeanum, the panicle bearing five side branches and over forty flowers, good examples of O. × excellens and O. × spectabile, O. crispum Diadem and Minoru, two prettily blotched forms, Cymbidium Lowianum, three good examples of the charming Odontioda chelseiensis, Maxillaria Sanderiana, a good Dendrobium Wardianum, Cypripedium × Richmanii, and other good things.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for a good group, containing a fine series of Miltonia vexillaria, Cattleyas, Lælia purpurata, Odontoglossum crispum, &c. We noted the charming O. crispum xanthotes, O. × Wilckeanum rubens, a well-coloured form, a pretty hybrid between O. cirrhosum and O. × ardentissimum, a good O. × percultum, the graceful Cœlogyne Dayana, Maxillaria Sanderiana, the handsome Oncidium Lanceanum, O. Marshallianum, Brassocattleya Maroni, Vanda teres, Masdevallia × Courtauldiana, × bockingensis, and × Measuresiana, the charming Miltonia × Bleuana, Dendrobium × polyphlebium, D. clavatum, Cattleya Dusseldorfii Undine, &c.

Messrs. Stanley & Co., Southgate, received a Silver Banksian Medal for a small group, containing some beautiful forms of Cattleya Mossiæ, including the white varieties Reineckeana, vestalis and Wageneri, some good Odontoglossum crispum and others, the rare Oncidium pulchellum, a beautiful white form of Lælia purpurata called The Queen, and others.

M. Ch. Vuylsteke, Loochristi, Ghent, sent a few very handsome hybrid Odontoglossums, three of which gained First-class Certificates, namely, O. × mirum Emperor of India (Wilckeanum × crispum), a large and handsome form, of excellent shape and substance, and very heavily blotched with brownish purple on a white ground, O. × Aglaon (Vuylstekeæ × crispum), a fine thing most like the former in general character, but the ground colour white, crowded with orange-brown blotches, and the lip broad, white, and blotched with chestnut-red, and O. × Princess Victoria (of unknown parentage), a handsome deep claret-red flower, with well-defined white margin. The group also contained a fine form of O. × eximium, and several other handsomely-blotched forms.

Mr. J. Birchenall, Alderley Edge, staged a small group, including four plants of Cattleya Mendelii, one of which, having very little yellow in the throat of the lip, is said to have been found with C. gigas, a plant of the rare Uropedium Lindenii, Odontoglossum × Adrianæ, and a few others. Botanical Certificates were given to Oncidium Retemeyerianum, a rare Brazilian species with a dark purple, beetle-like lip, and to Sigmatostalix Eliæ (Rolfe), a very pretty little plant, bearing a long raceme of yellow flowers, spotted with red on the lip.

Mr. J. Robson, Altrincham, staged a small group of handsome things, including a very pretty Odontioda raised from C. Nœtzliana and O. ×

ardentissimum, which will be a form of O. Cooksonæ, a beautiful form of Odontoglossum × Lambeauianum, and some handsomely-blotched seedling forms of O. crispum.

Messrs. James Veitch & Sons, Chelsea, included a few good Orchids in a magnificent group of stove plants which gained a Gold Medal. They included some good forms of Cattleya Mendelii and C. Mossiæ, Odontoglossum crispum and Pescatorei, half a dozen good Disa × Luna, Epidendrum vitellinum and × elegantulum, a very fine Oncidium Marshallianum, and a splendid example of Brassocattleya Veitchii.

A number of hardy Orchids were noticed in the groups of herbaceous plants. Messrs. Jackson & Sons, Woking, showing a nice lot of Cypripedium spectabile, pubescens, Calceolus, and acaule. Others were included in the group shown by Messrs. Barr & Sons, while Mr. G. Reuthe showed C. macranthum in good condition.

THE ORCHID STUD-BOOK.

THE general consensus of opinion of those best qualified to judge, as regards the merits of the *Orchid Stud-Book*, appears to be highly favourable to the system adopted, and full of admiration for the stupendous amount of work involved in its compilation. That it is not without some blemishes in no way detracts from its value as a *vade-mecum* to all who in any way have to do with Orchids, not the least drawback being that, unless religiously kept posted up, it soon becomes out of date. Having, with this object in view, had a copy interleaved, I may perhaps, in the light of practical experience, be allowed to state my appreciation of the book.

Having once grasped the principle on which the work is based, and having practically tested it, one can have none but unqualified praise, and, as has already been said by someone, the wonder is how we have done without it so long. To this delay in publication must be attributed that "careless and even reckless multiplication of synonymy" to which the authors refer.

A drawback causing considerable inconvenience is the omission in Part II. and its supplement of the generic names in full at the top of the pages, involving the frequent turning over of pages at times before one can be sure what genus is being dealt with.

In the introduction to the Index of Synonyms, p. 313, it is stated that "a few abbreviated words have also been modified in form when diversity of practice would have separated those that recur in different forms." It is to be regretted that, although a comparatively small and unimportant matter, this rational principle of implied spelling was not also adopted in the case of names beginning with Mc. and Mac, and Saint or St., as well as

Mrs., as is done in all important indexes and library catalogues, to the great convenience and saving of time and temper of all those who have to use them.

"Nomenclature is a thorny subject, and full of pitfalls," observes "Argus" (*O.R.* xvii., p. 68). Nowhere is the truth of this remark better exemplified than in the paragraph whence this quotation is taken, for had he pursued the subject of Cypripedium × Curtmanii one step further he would have discovered that the other parent, C. × Beeckmanii, is also only a form of an older hybrid, *i.e.*, C. × Berkeleyanum, and the parentage, on the principle of the *Orchid Stud-Book*, would therefore be formulated as follows: Berkeleyanum × Schlesingerianum. The interesting question now arises: Is the name Curtmanii valid or must it be altered?

People who live in glass houses should not throw stones, and when "Argus" (*ante*, p. 103) writes about the Orchid Committee of the R.H.S. neglecting or forgetting the rules drawn up by a Nomenclature Committee years ago, one naturally wonders that the authors of the *Orchid Stud-Book* allow anomalies to appear in print in the *Orchid Review* such as: 1, Odontoglossum × Hellenus (× harvengtense × crispum) (*ante*, p. 85), and O. × Helenus (harvengtense × Coradinei) (p. 116), and 2, Cypripedium × Iris magnificum (Chamberlainianum × Maudiæ) (*ante*, p. 84), while the *Orchid Stud-Book* (p. 169) gives Paphiopedilum ciliolare and P. × Sementa as the parents of P. × Iris. The excuse which may be advanced, that similar discrepancies are unavoidable in hurried reports of meetings, does not apply to such an oversight as that in the continuation of the *Orchid Stud-Book* (*ante*, p. 106), where Læliocattleya × Electra is given as the result of a cross between Cattleya Trianæ and Lælia × Latona, whereas a reference to the *Orchid Stud-Book* (p. 112) shows that the offspring of Cattleya Percivaliana and Lælia purpurata has already received that name.

If the present rate of increase of Orchid hybrids be maintained, a new edition of the *Stud-Book* will be required before five years have passed, and if so it is to be hoped there will be no necessity for supplements, as the constant turning from the body of the book to the two respective supplements and *vice versa* is somewhat trying. It is also to be hoped that in the new edition the authors will see fit to add the dates to the list of works cited after the Introduction on pages xlvii. and xlviii.

G. K. GUDE.

[We thank Mr. Gude for his appreciative remarks, and hope that he will succeed in his praiseworthy attempt to keep his copy up-to-date. We have a few remarks to make in reply, and will take the points seriatim.

The omission of the generic names from the top of the page in Part II. and its supplement was the result of accident. Instructions were given to

repeat these names, and were carried out in Part I.; their omission from Part II. was overlooked till a sheet was printed, after which they were omitted uniformly.

The object of the Index was to give the names in their actual form. The few modifications were those in which diversity of abbreviation occurred. and we admit that the principle of implied spelling might have been carried further.

We shall leave "Argus" to fight his own battles, but we cannot see that the argument about C. × Beeckmanii applies. The point seems to be that Curtisii, rather than M. de Curte, suggests itself as the first parent—which is not the case. C. × Berkeleyanum is not an older name than C. × Beeckmanii, but the foot-note shows that the latter is a doubtful hybrid. It may or not be correctly referred. We think Curtmanii must be adopted.

We are in no way responsible for the name C. × Iris magnificum (Chamberlainianum × Maudiæ)—we (like others) merely recorded an event which took place. The same remark applies to the earlier case, except that the misspelling of O. × Helenus in the earlier report escaped detection in the proof; also the different parentage. It is not practicable to apply the *Stud-Book* principles to these reports.

The case of Læliocattleya × Electra is certainly different. Twelve new hybrids were described, and we checked every record, but somehow failed to detect the earlier use of the name. As L.-c. × Electra cannot stand for the latter hybrid, we propose to call it L.-c. Eira, which name appears to be free.

We hope to receive a greater amount of assistance from hybridists in correcting such errors as they may detect, as well as in other respects, before commencing a second edition, and would urge those of our readers who have not obtained copies to do so at once. Applications should be sent to us direct.—ED. ORCH. REV.]

ORCHIDS IN SEASON.

SEVERAL interesting flowers are sent from the collection of G. H. Peace, Esq., Monton Grange, Eccles. A form of Odontoglossum triumphans has the sepals almost entirely brown, and the yellow on the petals much reduced, contrasting strongly with the typical form, while another has short, well-marked segments, and consequently a rounder flower than usual. They are flowering for the first time. Several good forms of Dendrobium nobile, including D. n. Ballianum, and a flower of D. × Wiganiæ are also sent.

A beautiful flower of Cattleya Schrœderæ alba is sent from the collection of James Geddes, Esq., of Ascot. It is of excellent shape, the petals being very broad, and the colour clear white, with the usual deep yellow blotch

in the throat. The plant was imported in 1907, and has flowered twice, this time bearing seven flowers.

A flower of the pretty Cattleya Schrœderæ highburiensis is sent from the collection of the Right Hon. J. Chamberlain, M.P., by Mr. Mackay, who remarks that the plant is bearing seven flowers. The petals are broad, and the colour blush pink, with a slightly darker, much crisped lip, and a buff yellow blotch in the throat. A fine bloom of Odontoglossum crispum is also enclosed, measuring over $4\frac{1}{4}$ inches from tip to tip of the petals, and having a few brown blotches on the lateral sepals and lip.

Several very handsome Odontoglossums are sent from the collection of H. S. Goodson, Esq., Fairlawn, Putney, by Mr. Day. They include several forms of the very variable O. Lambeauianum, and among the more distinct is a beautiful white form, with a large purple-red blotch at the base of each segment, and another very beautiful variety with purple ground colour, and very numerous small blotches, which are almost confluent in the petals. There are also good blotched forms of O. crispum and O. × armainvillierense, with a fine O. × Wiganianum. They form a very distinct and beautiful series, but are unnamed, so that we cannot say which of them represent special varieties.

A flower of the very handsome Cattleya × Dr. R. Schiffman Westonbirt var., which received a First-class Certificate from the R.H.S. on May 4th, is sent from the collection of Lieut.-Col. G. L. Holford, Westonbirt, by Mr. Alexander. It is exceptionally large, and has very broad blush-pink sepals and petals, and a bright purple-lip, with a yellow disc and a whitish area on each of the side lobes.

A fine form of Cattleya Mendelii, called C. M. majestica, is sent from the collection of F. Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins). The flower is blush-pink, with the front lobe of the lip purple, and some light yellow in the throat.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during June, on the 8th and 22nd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

On the second date the first Masters' Memorial Lecture will be delivered at 3 p.m. by Professor Hugo de Vries, the subject being *Masters' Vegetable Teratology*. Chairman, Sir Trevor Lawrence, Bart. The following meeting is the Society's great Summer Show, to be held at Holland House, Kensington, on July 6th and 7th.

The Cercle des Orchidophiles Belges, originally founded in 1888, has been reconstituted, and we have just received a Book of Rules, and list of

members and officers. The Committee consists of Messrs. Jules Hye de Crom, Président d' Honneur; Charles Vuylsteke, Vice-Président d'Honneur; Compte Joseph de Hemptinne and Firmin Lambeau, Présidents; Gustave Vincke-Dujardin and Charles Dietrich. Vice-Présidents; Maurice Verdonck, Secrétaire; Theodore Pauwels, Secrétaire-adjoint; Emile Praet, Commissaire général; Dr. Georges Ballion, Trésorier; Mme. Louis Hemptinne, Emile Duchesne, Jules Closon, Eugène Pourbaix and Alfred Janssens, Conseillers. The meetings are to be held at Ghent, but we have not yet received the dates.

ORCHID PORTRAITS.

CYCNOCHES PERUVIANUM.—*Gard. Chron.*, 1909, i. p. 309, fig. 133.

CYMBIDIUM INSIGNE SANDERI.—*Journ. Hort.*, 1909, i. p. 415, with fig.

CYPRIPEDIUM HIRSUTO-SALLIERI.—*Journ. Hort.*, 1909, i. p. 439, with fig.

CYPRIPEDIUM INSIGNE GRAND MONARCH.—*Gard. Mag.*, 1909, pp. 375, 376, with fig.

CYPRIPEDIUM INSIGNE GWYNEDD.—*Gard. Mag.*, 1909, pp. 375, 376, with fig.

DENDROBIUM BRONCKARTII, Wildem.—*Bot. Mag.*, t. 8252.

DENDROBIUM × CHESSINGTONENSE.—*Gard. Mag.*, 1909, pp. 394, 395, with fig.

DENDROBIUM NOBILE VIRGINALE.—*Gard. Mag.*, 1909, pp. 394, 395, with fig.

LÆLIOCATTLEYA DR. R. SCHIFFMAN WESTONBIRT VAR.—*Gard. Mag.*, 1909, p. 371, with fig.

MAXILLARIA SANDERIANA.—*Gard. Mag.*, 1909, p. 414, with fig.

MEGACLINIUM PURPUREORACHIS.—*Gard. Chron.*, 1909, i. p. 293, fig. 126.

ODONTIODA CHELSEIENSIS.—*Gard. Chron.*, 1909, i. p. 348, fig. 153.

ODONTIODA × ERNEST HENRY.—*Gard. Chron.*, 1909, i. p. 321, fig. 138.

ODONTOGLOSSUM CRISPUM MINORU.—*Gard. Mag.*, 1909, p. 423, with fig.

ODONTOGLOSSUM × THEODORA.—*Gard. Mag.*, 1909, pp. 332, 338, with fig.; *Journ. Hort.*, 1909, i. p. 391, with fig.

PHALÆNOPSIS GIGANTEA.—*Gard. Chron.*, 1909, i. p. 306, fig. 131.

TRICHOPILIA BACKHOUSEANA.—*Gard. Mag.*, 1909, p. 421, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

Owing to pressure on our space caused by the Temple Show, the continuation of the "Evolution of the Orchidaceæ" and several notes are unavoidably postponed.

E. T. We believe a form of Dendrobium transparens, but from a new locality.

A. K. H. Unusually small for Masdevallia Veitchiana, but possibly undeveloped, though we rather suspect it is a form of M. × Chelsoni.

J. G. Apparently both forms of Lælia × Pacavia, a hybrid between L. purpurata and L. tenebrosa.

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An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVII.] *JULY*, 1909. [No. 199.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 132.)

THE essential characters of the great suborder Monandræ were outlined in our last paper (p. 132), and we saw that they consisted of the reduction of the stamens to a single one in normal flowers, the cohesion of the pollen grains into pollinia, and the modification of the third stigmatic lobe into a rostellum, whose function is to secrete a viscous by which the pollinia are fixed to the body of the fertilising insect, these characters being adaptations to secure cross-fertilisation by particular insects.

The rostellum is a new organ, and before going further it may be well to indicate its origin and function more clearly. It is a modification of the median or third stigmatic lobe, and the viscous it secretes is a modification of that of an ordinary stigma, but it possesses the property of drying very quickly on exposure to the air, while that of the stigma remains moist for a long period—a remarkable adaptation to secure its particular purpose. The rostellum is at first quite distinct from the anther, but in the higher genera the union of the two is so complete as to obscure the fact. The hybridist who touches the front of the anther of an Odontoglossum with a pencil or piece of stick in order to remove the pollinia for hybridising purposes, finds the yellow pollen masses attached to the apex of a slender white stalk, called the stipes, which proceeds from a small dark-coloured body, called the gland, but the two latter do not belong to the anther at all. They are portions of the rostellum, which only separate at a very late stage in the development of the flower, and adhere to the united mass of pollen grains from the anther cells which constitute the pollinia proper. This united mass, part male and part female in its origin, is called the pollinarium, and is characteristic of the large tribe Vandeæ.

The union of the pollen grains is another adaptation, all stages of which may be traced. In the higher groups the contents of each anther cell are covered by a waxy coat, while still earlier the pollinia are seen to be united into a number of little packets, each attached to a central axis by a little stalk, forming the so-called sectile pollinia of the Neottieæ and Ophrydeæ.

In the genera with powdery pollen the grains, if examined under a

microscope, are seen to cohere in fours, called tetrads. This is the earliest stage of union, and its significance consists in the fact that during the formation of the pollen grains one mother cell divides into four daughter cells, as they are termed, and the four daughter cells remain in union, instead of forming separate grains, as in ordinary plants. The further union of these tetrads into pollinia is secured by modified pollen grains, which form connecting threads and the stalk and axis found in sectile pollinia. The caudicle of the Ophrydeæ, which is so well seen in the remarkable South African Bonatea speciosa, is also formed of modified pollen grains.

Thus we see that the rostellum and pollinia, together with the column, and in some cases the lip also, have progressed through increasing stages of complexity, and we will now endeavour to return as nearly as possible to the original starting point. This takes us back to the tribe Arethuseæ, where the union between the anther and rostellum has not taken place. The genus Pogonia is one of the most primitive of existing forms, and here we find the anther attached to the apex of the column by a short but distinct filament, situated close to the rostellum, but quite free from it, and versatile. The pollinia are powdery and very friable, the compound grains being only held together by a few slender threads, so that they often break up with a comparatively slight touch. The sepals are somewhat connivent, and the lip forms the landing stage on which the insect alights. On entering the flower the insect touches the rostellum, liberating some of the glutinous matter, which in turn comes in contact with the pollinia, and on the insect retreating the pollinia adhere to its body, and are thus carried to the next flower visited, when they get left upon the stigma, and pollination takes place.

Pogonia ophioglossoides is a very beautiful North American Orchid, which Meehan remarks grows generally in bogs, among sphagnum and sedges, and sometimes a bog will be perfectly ablaze with the bright purple blossoms. It is widely diffused in suitable localities from Canada to Florida, and occurs also in China and Japan. According to Scudder, the pollen consists of powdery grains not united by threads, and he also remarks that the rostellum is absent, which would make it more primitive in structure than other members of the genus—at all events in the extended sense of the *Genera Plantarum*. In this work Nervilia, Cleistes and one or two others are included in Pogonia, and species of the former are known in cultivation, and possess a rostellum, which secretes viscid matter, but is quite free from the anther. Nervilia is widely diffused in the warmer regions of the Old World, and Cleistes is exclusively American.

Arethusa and Calopogon are allied genera of North American swamp Orchids, and the latter is distinguished by having the lip uppermost, and bearded on the upper side with long, club-shaped hairs. In Arethusa the

sepals and petals are coherent below, and arch over above, while the lip is recurved beneath, thus forming a landing stage for the insect immediately in front of the mouth of the tube.

The character of having powdery pollen and the anther free from the rostellum is characteristic of numerous other genera, which Lindley grouped together in a distinct tribe, under the name Arethuseæ, but which Bentham afterwards united with Neottieæ, partly because of the difficulty of placing some of the genera in their correct position. The Neottieæ, however, as defined by Lindley, show a marked advance in structure, as will presently be seen, and it seems probable that most of the doubtful genera will fall into their natural positions when better known. The majority are not known in cultivation, and the pollinia, from their very nature, are difficult to make out from dried specimens. A few are also colourless saprophytes, and the affinities of these degraded types are not always easy to make out, even when the plants themselves are well known, and the latter is not always the case.

Lindley divided the tribe Arethuseæ into three smaller divisions, Euarethuseæ, Vanilleæ, and Gastrodieæ, but the latter consists of two genera of leafless saprophytes, Gastrodia and Epipogon, which have sectile pollinia, and the latter has the pollinia attached to a rostellar gland, both characters indicating a higher degree of specialisation. In Euarethuseæ he included Pogonia, with the allied genera since included in it, Calopogon, Arethusa, the Chilian genus Chloræa with its near allies Asarca and Bipinnula, Cephalanthera, which Darwin considers a degraded type close to Epipactis, and several of the Australasian genera now referred to the subtribe Diurideæ. Disregarding the doubtful types it is quite clear that here we have the most primitive genera of the Monandræ. They are all terrestrial plants, with comparatively simple structure, as in the genera above mentioned.

Lindley's other division of the Arethuseæ is Vanilleæ, in which he included Vanilla, Epistephium, Sobralia, and the genera now included under Galeola. In the structure of the column and pollinia the genera of Vanilleæ closely resemble Euarethuseæ, though in habit there are marked differences. Sobralia is a genus of reed-like plants, in habit closely resembling Selenipedilum, with plicate, strongly-ribbed leaves, and showy terminal Cattleya-like flowers, and having the segments more or less united at the base. Epistephium is pretty similar in habit, but has a small cupulate calyculus at the base of the segments. Vanilla is a genus of tropical climbers, often ascending to the top of the tallest trees, and there producing spikes of green or sometimes yellowish flowers. The fruit of Vanilla planifolia is aromatic and furnishes the Vanilla of commerce. The pollen grains of Vanilla are not united by threads but by viscous matter,

and the rostellum is hinged and flap-like over the stigma. The lip is united to the margins of the column, forming a tube, and is furnished about the centre with a large crest, consisting of a series of imbricating scales pointing downwards, which offer no impediment to an insect entering the flower, but compel it on retreating to press against the column, thus ensuring the removal of the pollen masses. On visiting a second flower the pollen would inevitably be left on the stigma, for the flap-like rostellum is lifted up and the stigma exposed. It is noteworthy that in Central America the native home of the Vanilla, the flowers are fertilised by small bees, but elsewhere, where the plant is cultivated for economic purposes, artificial fertilisation has to be resorted to. Other peculiarities are that the fruit is fleshy, and the seeds have a crustaceous, smooth, not reticulated testa. There are many species of Vanilla, the genus being widely dispersed through the tropics, but the majority are of no economic importance. Galeola is an allied genus of leafless saprophytes, having fleshy fruits and winged seeds. The whole plant is yellow, brown, or sometimes reddish in colour, the inflorescence much branched, and the flower approaching Vanilla in structure. The genus ranges from India to Australia, and contains about a dozen species.

The subtribe Diurideæ, as defined by Bentham, is for the most part Australasian, with a few species extending into the Indo-Malayan region. They are very rarely cultivated. Bentham remarks that they approach Arethuseæ in their vegetation characters and Spirantheæ in their erect anther. There are just over twenty Australasian genera and some 200 species. They are terrestrial, and the rhizome is generally more or less tuberiferous, with simple erect stems, in some cases producing several leaves, in others only a single one, a very few being leafless. The spike or raceme is simple and terminal. The anther is erect or leaning forward, and the rostellum is terminal and erect, very often short, but sometimes as long as the anther. The pollen is powdery or granular, sometimes so compact as to appear solid, in some genera free, in others attached to the rostellum. The perianth also shows the greatest diversity in shape and structural details, as may be seen by the numerous excellent figures given by Fitzgerald in his *Australian Orchids*. Lindley placed some of the genera in Arethuseæ and others in Neottieæ, but there is such a marked similarity and gradation between the different genera as to suggest for them a single origin, and as the Indo-Malayan species are very few in number and generally closely allied to Australian ones, Bentham suggests for the whole group an Australasian origin. The progressive development of the genera has not yet been worked out. The group is well represented in New Zealand and New Caledonia.

R. A. R.

(*To be continued.*)

CALENDAR OF OPERATIONS FOR JULY.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

GENERAL REMARKS.—During the next month the boilers and hot water pipes should be overhauled, and all defects made good before we are likely to have any cold spells, as so often happens in the autumn, when these jobs are left over. All boilers should be flushed out, and refilled with soft water if possible, and all faulty joints should be renewed. It is cheaper in the end to renew faulty joints than to patch them up, as they have a weakness for bursting in frosty weather, just when they are most wanted to be in good working order. Where saddle section boilers are used, all brick setting and flues should be overhauled and put in good order, so that no faulty flues will be discovered in the winter time. Here we use the sectional boilers and find them very easy to work, as the flues and every part of them can be easily got at, and it can be seen at once whether the boiler or stoker is at fault. We find, too, that sectional boilers are much more economical to use, especially where high temperatures are required, for there is practically no waste with fuel, as the whole of the boiler is heating surface. For long distance driving they are very fine for maintaining temperatures, very even with very little labour and attention, and should anything go wrong in winter, it can easily be seen if it is the boiler that is leaking, without pulling down a lot of brickwork.

THE HOUSES should also be overhauled, and all cracked and broken glass renewed. Any rotten rafters should be seen to before the weather gets cold. Houses that require painting should be done and made water-tight for the winter.

WATERING.—Plants should be looked over every day, as practically everything is now growing. If a plant is dry give it a good soaking, not just moisten the top, especially where the houses are lightly shaded. All hanging plants should be examined every day, and the dry ones plunged in a bucket of water to make sure they get soaked through. It is no use watering a plant with a can when it has got very dry, especially if in a basket, as it just runs off and does no good. Newly potted plants should be well looked after when watering, as many species soon suffer if left too dry. If a plant is in good condition it will seldom shrivel when potted, if well looked after afterwards. Give them a good soaking, then let them dry out before giving more, as sprinkling the surface every day is very misleading, for the tops are continually wet and underneath the compost is quite dry, and the plants shrivel in consequence.

CYPRIPEDIUMS, PHALÆNOPSIS, and all the soft-growing section should be kept well shaded, with plenty of moisture in the houses, giving air every day if possible. Keep them well syringed, especially when the outside conditions

are very dry, as it keeps them free from thrip and red spider, and also keeps the foliage in a healthy condition, which means everything where good flowers are required.

CATTLEYAS, Lælia anceps, Dendrobes, and all the harder growing section will only need sufficient shade to prevent scalding, as they enjoy plenty of sunshine, and also plenty of water in their growing season. The blinds can be lowered and drawn up much later and earlier than on the softer-leaved section. Plenty of air and moisture will counteract the extra heat, so long as excessive fire heat is not used. It is far better to let the fires out than to use a lot of heat during the summer months.

DENDROBIUM FIMBRIATUM and its variety oculatum will be passing out of flower, and plants that require repotting should be done as soon as they start to grow, for they begin to make roots immediately afterwards. There are some beautiful varieties in the summer-flowering section, although the flowers do not last so long as those of the winter-flowering species. Most of the yellow ones are large growing varieties, and will do well in the gable end of the Cattleya house or Stove, provided they get plenty of sun. When repotting, the plants should be broken up, and the strongest growths potted separately, and all useless back bulbs should also be removed. Give plenty of pot room, as they flower better when not disturbed very often. If carefully watered for a time they soon fill the pots with roots. A mixture of Osmunda and Polypodium fibre, with plenty of small crocks, will suit them. D. Gibsoni and D. Dalhousieanum require similar treatment.

DENDROBIUM BARBATULUM is a very pretty species, and when well-grown will give a profusion of flowers during the summer months. This being a smaller grower can be suspended from the roof of the Stove. It should not be over-potted, as it likes plenty of water. D. Bensoniæ is also a very pretty variety, and will do better in the Cattleya house than in the Stove. D. atroviolaceum will also do well in the Cattleya house provided it gets plenty of water. Any that need potting should be seen to as soon as they commence to grow. Those that are repotted will do better on the stage until they get established, when they can be suspended from the roof. The summer-flowering species are well worth growing, as they form a good contrast to the more showy Cattleyas. They are also very little trouble to grow, but must not be wintered as cool as D. Wardianum and D. nobile. They should be left in a temperature that will not fall below 60°.

IMPORTED DENDROBIUMS.—Just recently a large importation of Dendrobium Dearei has arrived. This is a very beautiful Dendrobe, and until recently has been rather scarce. The imported plants should give a wealth of flowers shortly. It requires stove temperature. Osmunda and Polypodium fibre mixed will suit all these varieties, and care should be taken not to overpot the small growers. Where plenty of water is used,

both for damping and syringing, green fly is about the only pest that will attack them, and this can easily be got rid of by fumigating lightly. Thrip will not live where plenty of water is used.

LÆLIA PURPURATA & L. TENEBROSA will both have finished flowering, and any plants that require potting should be done as soon as they commence to root. These make fine specimen plants, and will flower well when left undisturbed for several seasons. When potting specimens good lasting material should be used, so that a top-dressing will keep them going for several seasons. Osmunda fibre and oak leaves will easily last three seasons if properly watered. In repotting, great care must be taken not to break the roots, as L. purpurata is very impatient of being disturbed. Ample room should be allowed in repotting, and the leads should be turned inwards, not facing straight over the rim of the pot. Keep the rhizome just below the rim of the pot, so that plenty of water can be given during the growing season. Spread the roots out evenly in the pots, and work lumpy material in between the roots, and finish the top off neatly just below the rim of the pot, not in a cone shape, if a good specimen is wanted. Watering a cone of compost is like pouring water on a duck's back, for the water flows off with about as much effect. Keep the plants well shaded for a time after potting. A mat thrown over the glass under the blinds will make a capital shading. For a potting compost use Osmunda fibre and good oak leaves, with plenty of crocks mixed in, and pot firmly. A few moss heads can be worked in on top if preferred, but we have given up its use. One cannot tell when the compost requires water.

ONCIDIUMS.—The winter-flowering section will be making up their bulbs, and should be given plenty of water, also plenty of sunshine. Just enough shade to keep them from scalding will dry them out quickly, and ripen the bulbs. They grow better when they are well ripened, and are not much trouble to get through the winter. When grown soft they will often spot, and the bulbs rot away. As they are very free flowering, every encouragement should be given them to make up good bulbs, and they give good returns for labour spent on them. Give plenty of air, and watch for slugs, as they are very fond of the roots and young growths also. They can easily be trapped with lettuce leaves. We find in not using moss for topping them that we do not get bothered with slugs much. Osmunda fibre seems to be objectionable to slugs.

ODONTOGLOSSUMS should be kept as cool as possible. On very hot days a good circulation of air, and sprinkling of flour and water on the glass will keep them in good condition. Even in very hot weather care must be taken not to create a draught, which can easily be done. A place where one feels likely to get a stiff neck is not a place for growing Orchids in, or any other plants, tender or not.

DENDROBIUM NOBILE VIRGINALE.

A HOUSE full of this chaste and beautiful variety would be a sight worth seeing. Messrs. Armstrong & Brown, of Tunbridge Wells, write to us as follows:—"We are sending two photographs of a house of Dendrobium nobile virginale, one taken in April, 1908, the next in April, 1909. The plants are the same, but this year they are much finer, owing to their flowering on much stronger bulbs. There are over 200 plants in bloom in each photograph, all of which were raised from one seed pod, besides several hundred others which were sold previous to flowering, and we have

Fig. 15. DENDROBIUM NOBILE VIRGINALE.

not had a single coloured form among them. They are much more vigorous than the parent plant, and have larger flowers, which are finer in substance, and, as will be seen by the photograph, much more free in flowering. The parent plant was fertilised in March, 1903, and the seed sown in April, 1904."

We have selected the later photograph for reproduction on the opposite page, though it is impossible to do justice to such a fine lot of plants in the space at command. The variety, however, is now well known, and the aid of a little imagination will enable our readers to realise what the effect of such a display must have been, even if they had not the good fortune to

see the plants which have been exhibited by the firm in London and Manchester. How many flowers were open when the photograph was taken we should not like to guess, but on the most modest compilation there must have been many thousands. The single flower represents the original

Fig. 16. HOUSE OF DENDROBIUM NOBILE VIRGINALE.

D. n. virginale, and is from a photograph taken at the time of its first appearance only twelve years ago, when its history was given (*O.R.*, v. p. 145, fig. 8). Other albinos afterwards appeared among imported plants, and it is rather curious that the variety did not appear earlier, considering

how long the species has been known in cultivation. About this time, however, D. nobile was being imported in enormous quantities, and from a new district, from which the other albino forms may also have come. D. n. virginale was first raised true from seed in the collection of R. G. Thwaites, Esq., of Streatham, seedling plants being exhibited at a meeting of the Royal Horticultural Society, on March 8th, 1904 (*O.R.*, xii. pp: 103, 114). We had previously recorded the existence of a batch of seedlings, and the fact that the cross was made to see if the variety would come true from seed. The result has been amply confirmed by the experiment of Messrs. Armstrong & Brown, who exhibited a home-raised seedling in bloom at the R.H.S. meeting held on March 5th, 1907, and a group of about 150 others about a month later, to which a Silver-gilt Flora Medal was awarded (*O.R.*, xv. pp. 120, 147). Extensive groups have since been exhibited, both in London and Manchester. Messrs. Armstrong & Brown must be congratulated on the success of their experiment, which might well be repeated in the case of other rare varieties which can neither be imported in quantity nor propagated rapidly by the usual method of dividing. The experience gained in raising hybrid seedlings might thus be put to very useful account.

ORCHID COLLECTIONS ROUND MANCHESTER.

IN no corner of England are there so many Orchid collections as in the district round Manchester, and evidence of the enthusiasm of their owners is furnished by the fact that for the last twelve years the Manchester and North of England Orchid Society has held a series of fortnightly meetings without the aid of other attractions. At many of these meetings there have been magnificent displays of Orchids, and during the past year competitions for no fewer than five trophies have been in progress, the awards being made on the aggregate number of points gained by exhibitors. We have been informed that there are hundreds of Orchid collections within a radius of twenty miles around Manchester, and although the number includes some of very modest dimensions, there are many of considerable importance, and the number, we believe, tends to increase. A few notes from such a centre is sure to be interesting, and the following were made during a recent visit :—

THE VINE HOUSE COLLECTION.

One of the leading collections in the district is that of A. Warburton, Esq., Vine House, Haslingden, who has secured the premier awards in the competitions of the Manchester Orchid Society for the past year. This collection is particularly rich in choice Odontoglossums, and in species and hybrids of the Cattleya group, but we also saw a fine lot of Cypripedes, and some other interesting things, including many of the inevitable seedlings,

in the raising of which Mr. Dalgleish, Mr. Warburton's excellent gardener, is very successful.

The Odontoglossums are a magnificent lot, clean, sturdy plants, with large bulbs and leaves perfect to the tips, while the forest of strong spikes which were pushing up promised a brilliant display of flowers in the course of a few weeks. A good many plants were already in bloom, particularly in one long house, where some good O. Pescatorei, O. triumphans, the ever-popular O. crispum, O. × Adrianæ, and various other hybrids were forming a good display. A plant of the beautiful deep yellow O. luteopurpureum Vuylstekeanum carried two strong spikes with twelve flowers each, and contrasted effectively with some good examples of the type. It was very interesting to see the original plant of O. × ardentissimum in bloom, and the flowers were said to have been out for a month. Some seedlings between it and O. × Adrianæ were also pointed out. A strong plant of O. crispum bore spikes of ten and eleven flowers, and the handsomely-blotched O. c. meleagris and O. c. moortebeekiense were finely in bloom, the latter having clear white ground and sharply defined reddish purple blotches. O. c. Queen of the North, just previously certificated at Manchester, bore spikes of twelve and six flowers, and a specially fine blush pink form was also pointed out, the plant being remarkably strong. O. Pescatorei album bore a very fine spike, the flowers being pure white with a deep yellow crest. A handsomely-blotched form of O. × Wilckeanum with clear white ground was also noted, with good forms of O. Kegeljani, O. × harvengtense, and a very fine O. × Ruckerianum. Many other varieties, including excellent forms of O. crispum, typical and blotched, were passed over. Selection has been carried on here for a very long period, while many other fine things have been purchased, the result being that the collection is rich in choice forms, and it was specially pleasing to see everything in such excellent health.

In another Odontoglossum house we noted O. gloriosum bearing a fine panicle with six branches, O. cordatum, a good O. × elegantius, O. Rossii, O. × Andersonianum, and a lot of O. crispum in spike, with a few in flower. Evidence of hybridising was seen in a capsule of Odontoglossum luteopurpureum × Rolfeæ, while a young capsule on Sophronitis grandiflora as the result of crossing with Odontoglossum crispum was pointed out as a curiosity, though it is not expected to mature, or at least not to contain good seed. There were also fine examples of Oncidium Marshallianum in bloom, with Cochlioda sanguinea and other interesting things.

A third small house contained a lot of seedling Odontoglossums, a few examples being in bud. One from O. × ardentissimum × crispum had a rosy blush flower just expanding, while a second in bud showed distinct blotching on the segments.

The Cattleya house contained a lot of fine plants which were pointed out as all good varieties, and in bloom we noticed several C. Mendelii and Mossiæ, a very good light form of C. Schrœderæ with two spikes, C. intermedia cœrulea with the front lobe of the lip slaty blue in colour, C. × Parthenia Prince of Wales, a plant of C. Schilleriana very dark in the bud, and a pretty natural hybrid clearly derived from C. Forbesii and C. Harrisoniana, and thus a form of C. × venosa. Other interesting things in bloom were Læliocattleya bletchleyensis, Brassocattleya Pluto with the side lobes of the lip well fringed, Bifrenaria Hadweni, Stanhopea eburnea, Cypripedium × Helen II., and various others. A plant of the rare Aracnanthe moschifera was pointed out, also what is supposed to be a white form of Cypripedium Charlesworthii, a healthy little plant. Some capsules and seedlings were also in evidence, among the latter being plants from Lælia tenebrosa Victor Warburton crossed with a light Cattleya Mendelii.

A small Cypripedium house was filled with choice seedlings of good size, while in the next house were lots of others in all stages, among those noted being C. bellatulum album × C. insigne King Edward VII., and C. i. giganteum × C. Druryi. We also saw in bloom two good C. Lawrenceanum Hyeanum, with several C. bellatulum, and good forms of the beautiful C. niveum.

Another house contained more Cypripediums, all choice varieties, and we noticed a number of capsules, one of them on a fine plate of C. × Minos Youngii. There were also some good Miltonia vexillaria, and other interesting things. Some other houses we had not time to see.

We noticed that on some of the houses lath roller blinds are used, but bamboo blinds which roll up have also been tried, and found to be very good. Side ventilation is given by shutters in the walls. The collection generally is in excellent condition, and reflects great credit on Mr. Warburton's excellent gardener, Mr. Dalgleish, under whose care it has been for some considerable time.

ORCHIDS AT NEWCHURCH.

Another very interesting collection is situated at Ashlands, Newchurch, the residence of Richard Ashworth, Esq., J.P., where several houses are devoted to the usual representative genera, and the plants are in a thriving condition under the care of Mr. Fletcher.

The first house entered was devoted to Cool Orchids, and we noted many interesting things in bloom, including Odontoglossum Hunnewellianum, O. × Adrianæ, O. Pescatorei, and a lot of O. crispum, with good examples of Masdevallia Chimæra, M. caudata, M. radiosa, M. coccinea, M. × Pourbaixii, and a profusely-flowered plant of M. Houtteana, Lycaste Skinneri, Oncidium superbiens, and examples of Cattleya citrina. Here we

saw a remarkably fine specimen of Dendrobium Victoria-Regina, in a 10-inch pan, with numerous stems, some of them exceeding a foot long and bearing a profusion of beautiful violet-blue flowers, forming quite a picture. A position fairly near the glass in the Cool house is clearly the one in which to grow this beautiful species. We also examined the contents of a capsule of Cochlioda Nœtzliana crossed with Oncidium crispum, which had just been cut, and found a profusion of plump seeds, which it is hoped can be successfully germinated, as the cross is a remarkable one.

In an adjacent house we saw several well-bloomed plants of Sophronitis grandiflora, a nice lot of Odontoglossum Rossii, O. Cervantesii and the very distinct variety decorum, a pretty form of O. crispum with rosy spots, and two plants of O. c. Black Prince, a variety having unusually dark spots. It has been in the collection for eight years. We noted also a nice lot of seedlings, including some from O. Uroskinneri crossed with a good O. crispum. O. × Rolfeæ × Pescatorei was a very prettily spotted flower with a white ground.

Passing through another house, containing a lot of Dendrobiums, &c., with Epidendrum radicans, and several good E. × Boundii in bloom, we came to the Cattleya house, where we saw a nice lot of C. Schrœderæ in bloom, with C. Skinneri and the handsome C. × Lawre-Mossiæ, some good C. Mendelii and C. Lawrenceana, with a very handsome C. × Jupiter (Lawrenceana × Warscewiczii), having large, richly-coloured flowers, with two yellow, eye-like blotches in the throat, the handsome Læliocattleya Wellsiana, and other good things. Seed pods on Cattleya × Iris and others were noticed.

Another Odontoglossum house contained a profusion of flowers, including a lot of well-grown O. Pescatorei and many examples of O. crispum, one of which bore a fine spike of nineteen flowers, O. c. xanthotes with twelve flowers, and various other varieties which we did not note. There were also some good examples of O. Hallii, O. triumphans and O. Kegeljani, several pretty O. × Adrianæ, O. × ardentissimum, a very rosy O. citrosmum, a beautiful form of O. × Lambeauianum, with rich colour and markings, and various others—in fact this house was quite gay with bloom.

A Cypripedium house contained a lot of choice varieties, the majority out of flower at this season, but we noted the handsome C. Mastersianum, a richly coloured hybrid between C. × Gowerianum and C. ciliolare, and various well-known kinds, C. callosum Sanderæ, C. Lawrenceanum Hyeanum, with a number of C. niveum and C. bellatulum suspended from the roof. We noted also a nice lot of seedlings, good plants of Miltonia vexillaria and M. × Bleuana, Cymbidium insigne and C. Lowianum, Phalænopsis amabilis Rimestadiana, and various other good things.

Mr. Ashworth is an enthusiastic Orchidist, and the collection generally

is in thriving condition. The cleanliness and order everywhere apparent show both ability and industry on Mr. Fletcher's part, and such a collection must keep him pretty busy.

ORCHIDS AT WHALLEY RANGE.

The collection of S. Gratrix, Esq., Whalley Range, consists chiefly of Cypripediums and Odontoglossums, with a few Cattleyas, &c., and under the care of Mr. E. Shill, formerly with the late Captain Law-Schofield, it is in an improving condition.

The two Cypripedium houses contain a lot of choice varieties, good plants of C. × Germaine Opoix and C. × Gaston Bultel being pointed out, as well as C. × The Baron, of which we believe the entire stock is to be found here. C. Lawrenceanum Gratrizianum was in bloom, also C. × William Matthews, and a good plant of C. × Maudiæ carried three buds. A fine lot of autumn and winter-kinds were pointed out in thriving condition, and promise a fine display of flowers later on.

In the two Odontoglossum houses a number of good O. crispum were in bloom, including the beautiful O. c. Luciani, while O. × loochristiense bore a spike of ten flowers, and O. Pescatorei Charlesworthii, O × ardentissimum exquisitum, and others were also very attractive.

Among the Dendrobiums half-a-dozen plants of D. nobile virginale were pointed out, and in the Cattleya house we noted Læliocattleya highburiensis in flower and L.-c. Ballii in bud. Most of the plants here were not yet in bloom.

(*To be continued.*)

ORCHIDS AT HAYWARDS HEATH.

(*Concluded from page* 173.)

We may now mention a few of the interesting crosses that were pointed out. Of Cochlioda Nœtzliana × Ada aurantiaca there are about half-a-dozen seedlings, some four years old, and the same species has been crossed with Miltonia vexillaria, Oncidium incurvum, O. concolor, O. Forbesii, Odontoglossum grande, O. Uroskinneri, and C. vulcanicum, some of the seedlings being still small. The last-mentioned cross should yield the natural hybrid C. × miniata, which appeared some time ago. C. Nœtzliana crossed with Odontoglossum × amabile is said to have yielded a light red hybrid having no markings beyond the yellow crest. Many other crosses with this species were pointed out, but we did not note them, though we hope to have the opportunity of recording them as they flower. In every case C. Nœtzliana had been the seed parent, and Mr. Charlesworth remarked that he had used the pollen of this species on all sorts of things, but always without success.

Among other interesting seedlings we noted two from Odontoglossum

cirrhosum crossed with Oncidium Forbesii, also of Oncidium tigrinum crossed with the same species. Odontoglossum ramosissimum × O. crispum was also represented by a good plant, and a batch of O. Edwardii crossed with O. Rossii represents a very interesting cross. Of Trichopilia nobilis × suavis there were two good plants. Two interesting things in bloom were Odontoglossum × Fascinator × ardentissimum, a pretty, round, copiously blotched flower, while Odontioda heatonensis, crossed with Odontoglossum × amabile, bore a small scape with two flowers of a white ground colour, prettily marbled with rose, and the crest yellow with a few white spines. Numerous secondary crosses have been effected between the choicer Odontoglossums, from which some sterling hybrids are anticipated. Seedlings from O. Rossii rubescens × ardentissimum should prove very handsome when they reach the flowering stage.

In one of the Warm houses was pointed out what should be a very interesting cross, namely, Brassavola cuspidata crossed with Cattleya Mossiæ Wageneri, while a curious hybrid from Lælia cinnabarina crossed with Epidendrum prismatocarpum was in bloom. A strong plant of Cypripedium niveum × Rothschildianum was pointed out as twelve years old, but cannot be got to flower.

In one of the houses we found a number of plants which were being shaded with mats so as to keep them back for the Temple Show, and among them we saw a fine plant of Odontoglossum cirrhosum bearing three spikes from the base of the same bulb, two from one axil and one from the other, a thing none of us remembered to have noticed before. We also noticed the prettily-spotted O. Pescatorei Charlesworthii, some good O. × Othello, O. × Thompsonianum, a few fine seedling O. crispum, O. × spectabile with three spikes, several pretty Odontiodas, a dark Renanthera Imschootiana with three panicles of flowers, some fine forms of Cypripedium niveum, one bearing six flowers, the rare white Aërides virens Sanderæ, Læliocattleya Larissa, a pretty yellow hybrid from L. flava × C. Mendelii, and others too numerous to mention.

The potting sheds proved very interesting, for we saw various seedlings being pricked off, and also examined the compost. About equal parts of Osmunda and Polypodium fibre are used, with a small amount of oak leaves (not leaf mould) and sphagnum moss, these all being cut up and thoroughly incorporated together. No sand or crock dust are used. Mr. Charlesworth regards them unnecessary, for such a mixture is sufficiently porous without them. A constant food supply is required, and such a compost is considered to contain all the necessary ingredients.

The arrangements for packing, &c., are very complete, and the various departments are lighted by electricity, the current being generated on the premises. In short, the whole establishment has been laid out for the

purpose of raising and growing Orchids in the best possible way, and as there is ample room for development in the future, everything points to the probability of an increased amount of success for this enterprising firm in their new home. The situation is an excellent one, and the good light in winter and the complete absence of urban fog should make the locality quite ideal for Orchid culture. The numerous houses of seedling Odontoglossums and allies were a revelation, and the ease with which these plants can be raised under suitable treatment is remarkable. One batch of thriving little seedlings was pointed out from seed sown as recently as last February.

ODONTOGLOSSUM × KENCHII.

A FLOWER of this handsome Odontoglossum has been sent from the collection of John S. Moss, Esq., Wintershill, Bishops Waltham (gr. Mr. Kench). It was raised from O. Kegeljani crossed with the pollen of O. × Wilckeanum var. Mossiæ, and has light yellow sepals, with two chestnut brown bars below the middle, and a large rounded blotch above; light yellow toothed petals, which are nearly white on the disc, and bear a cluster of small roundish brown blotches about the centre, and some lines and dots near the base. The lip is reflexed at the base, and the margin is somewhat recurved in front and apiculate, this part being white, while a circular area round the crest is similar in colour, the intervening area consisting of one great cinnamon-brown blotch. The crest consists of two white spines in front, and about five lateral teeth on each side, the latter having a brown line on each. The column wings are broad and denticulate, with a few cinnamon-brown blotches. It was described by Mr. Crawshay in 1907 (*Gard. Chron.*, 1907, ii. p. 3), but by some inexplicable error was enumerated as O. × Mossiæ in the *Orchid Stud-Book* (p. 290), a mistake that should be corrected. It is a very bright and attractive hybrid.

HIGH PRICES FOR CYPRIPEDIUMS.—Six choice Cypripediums from the collection of Lt.-Col. G. L. Holford, Westonbirt, were included in the Orchid sale held by Messrs. Protheroe & Morris during the Temple Show week, and fetched high prices, the bidding being very spirited. C. × Moonbeam (Thompsoni × Sallieri Hyeanum), was purchased by Messrs. Cypher & Son for 210 guineas. C. × Milo Westonbirt var. was secured by Mr. William Bolton, Warrington, for 130 guineas. C. × Helen II. Westonbirt var. and C. × Actæus Bianca (Leeanum Prospero × insigne Sanderæ) went to Messrs. Charlesworth & Co. for 110 guineas each. C. × nitens-Leeanum var. Hannibal went to Mr. E. Roberts, of Eltham, for 100 guineas, and C. × Beryl (Mrs. Wm. Mostyn × Beeckmanii) fetched 55 guineas, Mr. W. Bolton being the purchaser. All the plants are duplicates of the original certificated specimens, and were offered without reserve. They have been previously noted in our pages.

DENDROBIUM SANDERÆ.

A HANDSOME ally of Dendrobium Dearei has just been described and figured, under the name of Dendrobium Sanderæ (Rolfe in *Gard. Chron.*, 1909, i. p. 374, fig. 163). It was introduced by Messrs. Sander & Sons, of

Fig. 17. DENDROBIUM SANDERÆ.

St. Albans, and photographs, dried flowers, and a living plant have been sent to Kew. The annexed figure was prepared from one of the photographs, and for the opportunity of reproducing it we are indebted to

the courtesy of the proprietors of the *Gardeners' Chronicle*. The species has tall, striate, copiously leafy stems, from 1½ to three feet long, somewhat thickened below the middle and narrowed upwards. The leaves are oblong, slightly bilobed at the apex, and under two inches long. The short racemes are borne on the upper part of the stems, and produce three or four large and beautiful flowers, whose general aspect can be seen in the figure. The collector describes the flowers as large and very effective, the sepals and petals as pure white and of good substance, and the lip white lined with green, the side lobes lined with blackish purple, and the throat and inside of the spur blackish violet. Traces of these colours are retained in the dried flowers. The plant is said to be free-growing and flowering, and is certainly very beautiful. The petals are large and well displayed. In the dried flowers they are 1½ inches long by an inch broad, while the expanded lip measures over an inch across. The spur tapers to a fine point, and measures over 1¼ inches from its junction with the pedicel. The second photograph sent shows the plant much reduced, including a stem bearing about forty leaves. The plant bears a considerable general resemblance to D. Dearei, Rchb. f., and D. parthenium, Rchb. f., the latter a handsome Bornean species which has been lost sight of. It is, however, quite distinct from either. It will probably require similar treatment to D. Dearei.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting after the Temple Show was held at the Royal Horticultural Hall, Vincent Square, Westminster, on June 8th, when there was a fine display of Orchids, though the groups were rather scattered. The awards consisted of eight medals, one First-class Certificate, three Awards of Merit, two Botanical Certificates, and one Cultural Commendation.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a fine group of Orchids, to which a Silver Flora Medal was given. It contained a plant of the finely-blotched Odontoglossum crispum President Fallieres with a spike of eighteen flowers and buds, O. crispum xanthotes, two good O. apterum, and others, Masdevallia coccinea and a lot of good M. ignea, Anguloa Clowesii, Dendrobium Williamsoni and some good D. thyrsiflorum, Cymbidium Huttoni, the pretty little Miltonia Phalænopsis, a good Odontioda heatonensis, Cattleya × Dusseldorfii Undine, and C. Mossiæ Princess Juliana, a pretty white form, with some rosy veining on the lip, the handsome Brassocatlælia Veitchii, Scaphosepalum gibberosum and octhodes, with other good things.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for Læliocattleya Mikado, a

very handsome hybrid of unrecorded parentage. The flower is of good size and shape, with bright canary sepals and petals, and the front of the lip ruby crimson, margined with yellow. He also received an Award of Merit for Cattleya Mossiæ var. A. Dimmock, a beautiful blush-pink form, with a very large violet-crimson marbled blotch in front of the disc, and a very broad white fringed margin.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), received an Award of Merit for Læliocattleya Feronia (C. × Enid × L.-c. Haroldiana), a handsome hybrid, having bright salmon-pink sepals and petals, and a rich amethyst-purple lip. Botanical Certificates were given to a profusely flowered specimen of Cirrhopetalum vaginatum, and to a pretty Angræcum called A. expansum, having erect stems with distichous, oblong, coriaceous leaves, and a two-flowered raceme of pure white flowers, with broad segments and a long curved spur. A Cultural Commendation was given to a fine specimen of Dendrobium Jerdonianum, with about nine stems. We noted also a plant of Angræcum Scottianum, and a well-bloomed Stelis tristyla.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), received an Award of Merit for Odontoglossum × amabile Fowlerianum, a fine form, having the sepals and petals prettily tinged with purple, and heavily blotched with cinnamon-brown, and the front of the lip white.

E. F. Clark, Esq., Chamonix, Teignmouth, sent two flowers of Læliocattleya Marlburia (L. Boothiana × C. Schrœderæ), a pretty rosy-lilac hybrid, most like the former in general character.

Walter Cobb, Esq., Normanhurst, Rusper (gr. Mr. Salter), sent a fine hybrid Odontoglossum called O. × Cobbianum, a well-coloured flower, showing traces of O. Harryanum in the crest.

The Hon. Mrs. Foley, Packham, Fordingbridge, Hants, sent a very handsome Central African Lissochilus, bearing an inflorescence about five feet high, with several large flowers, having broad rosy lilac petals and lip, and greenish acute sepals. It is probably L. stylites, Rchb. f.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a very choice group, containing some good Læliocattleya Fascinator, one bearing six fine flowers, L.-c. Chloe, Brassocattleya Veitchii, B.-c. striata, Odontoglossum × armainvillierense xanthotes, some handsome O. × Lambeauianum, O. × amabile, O. × Ossulstoni, and others, Spathoglottis × Veitchii, Odontioda heatonensis, a beautiful O. Bradshawiæ, Vanda Bensoni, V. cœrulescens, the very distinct V. c. Boxallii, Ornithocephalus grandiflorus, Gongora saccata, Bulbophyllum Reinwardtii, B. saurocephalum, Calanthe veratrifolia, Stelis tristyla and others.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, received a Silver Flora Medal for a very fine group, including some good examples of

Odontoglossum hastilabium, crispum and Pescatorei, a richly-coloured O. × illustre, O. citrosmum, O. × laudatum, O. × Adrianæ, Cattleya Mossiæ and Skinneri, Lælia purpurata, Læliocattleya Hippolyta, Oncidium cornigerum, phymatochilum, macrant hum, and the rare O. Warscewiczii, the graceful Cœlogyne Dayana, Sobralia macrantha alba, Dendrobium chrysotoxum and transparens, Cochlioda Nœtzliana, Ada aurantiaca, Epidendrum × elegantulum, E. pentotis, Spathoglottis × Veitchii, and other good things.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including in the centre some noble examples of Cattleya Warscewiczii Sanderiana, the handsome Læliocattleya Aphrodite, Ganymede and Canhamiana, the latter including the variety plumosa, with feathered markings on the petals. Brassolælia Gratrixiæ, Cypripedium × Gowerianum, a fine Odontoglossum × harvengtense, Bulbophyllum barbigerum, B. Lobbii, Ornithocephalus grandiflorus, Renanthera Imschootiana, Warscewiczella discolor, Masdevallias, &c.

Mr. A. W. Jensen, Lindfield, Haywards Heath, received a Silver Banksian Medal for a good group of Cattleya Mossiæ, Mendelii, and Warscewiczii, with a few good Odontoglossum crispum, including one with lip-like markings on each of the petals, Oncidium Kramerianum, and Miltonia vexillaria.

Messrs. J. & A. A. McBean, Cooksbridge, received a Silver Banksian Medal for a good group, containing some excellent forms of Odontoglossum crispum, and including white, pink and spotted forms, one of the former having very broad segments forming a complete circle. We also noted the beautiful O. c. xanthotes, O. × harvengtense, some good O. Pescatorei, a few Cattleya Mossiæ, a fine Oncidium Schlimii, &c.

Messrs. J. W. Moore, Ltd., Rawdon, Leeds, received a Silver Banksian Medal for a very interesting group, containing some fine specimens of Læliocattleya Aphrodite, Cattleya × Dusseldorfii Undine, Odontoglossum × armainvillierense xanthotes with ten flowers, a good O. × Rolfeæ, Gongora atropurpurea, Miltonia vexillaria leucoglossa, Dendrochilum longifolium, the graceful Angræcum modestum, Cirrhopetalum Collettii, Epidendrum vitellinum and Wallisii, the handsome Disa × Luna, Cochlioda sanguinea, &c.

Messrs. James Veitch & Sons, Royal Exotic Nursery, Chelsea, also received a Silver Banksian Medal for a showy group, including some good Cattleya Mossiæ and Mendelii, fine examples of Disa × Luna, Læliocattleya Ballii, Ithone, and others, Epidendrum vitellinum, Odontoglossum crispum, &c.

Messrs. Armstrong & Brown, Tunbridge Wells, sent Odontoglossum crispum cristatum, a remarkable form, all the petals being much fringed, and having lip-like markings at the base.

Mr. F. McBean, Plumpton, Sussex, sent a nice little group, including a few good Cattleya Mendelii, C. Mossiæ and Odontoglossum crispum, with a form of O. × Adrianæ.

M. Mertens, Mont-St.-Amand, Ghent, sent a good Vanda cœrulea, with an unnamed Læliocattleya and several unnamed Odontoglossums.

Mr. H. A. Tracy, Twickenham, sent some good examples of Cattleya Mossiæ, Odontoglossum × eximium Tracy's var., a fine form with dark violet blotches, and Oncidium Batemanianum.

AT the meeting held on June 22nd the Orchid exhibits were fewer in number than for a long time past, only seven exhibitors being represented, and the awards consisted of three medals only. Three plants were entered to go before the Committee, but none of them secured an award.

J. G. Bergheim, Esq., Belsize Court, Hampstead (gr. Mr. Page), sent a species of Megaclinium from Tropical Africa, which proves to be M. triste, Rolfe, a species described some few years ago (*Kew Bull.*, 1894, p. 362). The flowers are dull blackish purple, and are borne on a stout rachis with rounded angles.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), sent Odontoglossum × Black Prince, a showy hybrid having a white ground colour, very densely blotched with dark claret-red.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent Odontoglossum crispum Trianæ majesticum, a very fine form, with flowers of excellent shape and substance.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, staged a fine and varied group, which received a Silver Flora Medal, the more noteworthy plants including some fine forms of Cattleya Mendelii and C. Warscewiczii, a splendidly-flowered Oncidium Wentworthianum, O. macranthum, O. varicosum Rogersii, O. Lanceanum, a fine plant of Epidendrum prismatocarpum, Odontoglossum hastilabium, Masdevallia calura, M. erythrochæte, Bulbophyllum Lobbii, Lælias, Cypripediums, and several other good things.

Mr. A. W. Jensen, Lindfield, Haywards Heath, staged a small group of interesting things, which gained a Silver Banksian Medal. It included some excellent forms of Cattleya Mendelii and Warscewiczii, C. Mossiæ Arnoldiana aurea, a pretty blush white form, and a fine form of Odontoglossum crispum with a very broad lip.

Messrs. Stanley & Co., Southgate, also received a Silver Banksian Medal for a good group of Cattleya Mossiæ, including a very beautiful C. M. Reineckeana and some fine coloured forms of the species, showing much variation in the colour of the lip, C. Gaskelliana pallida, Lælia purpurata Russelliana, and a few other good things.

M. Maurice Mertens, Mont-St.-Amand, Ghent, showed a few good hybrid Odontoglossums, Odontiodas, and Cattleyas.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THE meeting of this Society held at the Coal Exchange, Manchester, on June 10th marks the close of the twelfth year, and a good muster of members attended the Annual Meeting, which was held at three o'clock. The Society, which three or four years ago showed evidence of being in a moribund condition, is now in a very healthy and flourishing state, and not least, with a comfortable balance at the Bank. The various competitions resulted as follows :—

A. Warburton, Esq., Vine House, Haslingden, was the winner of the handsome "Charlesworth Cup"; he also won the "Bromilow Cup" and the "Ward Cup" for Odontoglossums.

The fine Cup presented by Messrs. Sander for Cypripediums was won, and will be held for twelve months, by J. H. Bromilow, Esq., Rann Lea, Rainhill. The "Low Cup" for Cattleyas and Lælias was won by J. McCartney, Esq., Hey House, Bolton. The Society's Gold, Silver-gilt and Silver Medals, offered to exhibitors not competing for Cups, were won by Z. A. Ward, Esq., Northenden; Richard Ashworth, Esq., Newchurch; and Ed. Rogerson, Esq., Didsbury, respectively. The Gold, Silver-gilt and Silver Medals offered by the Society to amateurs not employing a gardener were won by C. Parker, Esq., Ashton-on-Ribble, Preston; H. Arthur, Esq., Blackburn; and J. Stott, Esq., Radcliffe, in the order named. I understand that the same number of Cups will again be presented for competition, Mr. Ward altering his from Odontoglossums to the section for amateurs not employing a gardener.

There was an excellent show of plants at the meeting, and the Committee sat as follows :—Messrs. E. Ashworth (Chairman), R. Ashworth, Smith, Ward, Cowan, Sander, Leemann, Thorp, Warburton, Keeling, Parker, Holmes, Ashton, Cypher and Weathers (Sec.).

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a fine group of Cattleyas and Lælias, which gained a Silver-gilt Medal. Miltonia vexillaria var. delicatissima, Cattleya Mossiæ var. Jaffa, C. Mendelii Viscount Bury, and C. M. nobilior all gained Awards of Merit, a Cultural Certificate going to C. M. Castle Hill var., a well-flowered plant of this handsome species.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), showed a well-flowered group of Cattleyas, and a small but choice group of Odontoglossums, which included O. × eximium and O. crispum xanthotes, both gaining Awards of Merit. I noted also O. c. King of England, O. c. Britannia, O. c. Mrs. B. Walker, Cattleya Mossiæ Wageneri, C. M.

Reineckeana Hardy's var., C. gigas, well flowered, and many others of equal merit (Silver-gilt and Silver Medals).

J. H. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), gained a Silver Medal for a good group of Cypripediums, including a very fine C. niveum var. Czarina, which gained a First-class Certificate, with C. × Cetewayo (Goweri × ciliolare) and C. Druryi var. Black Prince, which gained Awards of Merit. I noted also a distinct variety of C. × The Princess, C. × Gowerianum Schofield's var., &c.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), gained a Silver Medal for a group which included a very fine plant of Dendrobium Victoria-Regina (First-class Certificate and Cultural Certificate), many Odontoglossums, Masdevallias, Cypripedium bellatulum, C. × Maudiæ, &c.

E. J. Wilde, Esq., Henshaw Lane House, Hollinwood, showed a group of Odontoglossums, chiefly O. crispum, O. Pescatorei, O. triumphans, O. Harryanum, &c. (Silver Medal).

J. J. Holden, Esq., Southport (gr. Mr. Johnson), showed the fine Cattleya × Mrs. Myra Peters, which received a First-class Certificate, and C. Mendelii Gladys, the latter gaining an Award of Merit.

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), showed Cattleya × Dusseldorfii var. Undine, Odontoglossum crispum xanthotes, Cypripedium × Lawrebel, and a very richly coloured Renanthera Imschoo-tiana var. splendens (Award of Merit).

A. Hamner, Esq., The Mount, Marple, showed Cypripedium bellatulum Hamner's var., which gained an Award of Merit.

Messrs. Charlesworth & Co., Haywards Heath, Sussex, showed a fine healthy plant of the remarkable Bulbophyllum virescens, which received a First-class Certificate.

Messrs. McBean, Cooksbridge, staged a fine and varied group, chiefly of fine types of Odontoglossum crispum, Cattleya Mossiæ Reineckeana, C. M. Aureole, Vanda teres, Oncidium Schlimii, Cœlogyne pandurata, and many other fine species (Silver-gilt Medal).

Messrs. Keeling, Westgate Hill, Bradford, gained a Silver Medal for a good mixed group, which included many showy species and some Botanical plants, as Maxillarias, Epidendrum atropurpureum and Stamfordianum, Masdevallia × Bocking hybrid, Ornithocephalus grandiflorus, &c. (Silver Medal).

Messrs. Moore & Co., Rawdon, Leeds, staged a good miscellaneous group, which received a Silver Medal, and in which I noted the rare Disa × Luna, Renanthera Imschootiana, Epidendrum Wallisii, &c.

Messrs. Sander & Sons, St. Albans, staged a well-flowered group of Cattleyas and Leliocattleyas, in which were many varieties of L.-c. Martinetii, Cattleya gigas, &c. (Silver Medal).

Mr. J. Robson, Altrincham, staged a few good Cattleya Mendelii, and several meritorious Odontoglossum hybrids.

Mr. W. Bolton, Wilderspool, Warrington, staged a small group of Odontoglossums of very fine type.

Mr. J. Birchenall, Alderley Edge, showed Cattleya Mendelii and Selenipedium Schlimii, with a few others.

Messrs. Stuart Low & Co., Enfield, showed a small group of Cattleyas.

Mr. W. Shackleton, Great Horton, staged a few plants of Odontoglossum crispum.

The following constitute the Committee for the current year (new members marked*) :—

E. ASHWORTH, Harefield Hall, Wilmslow, *Chairman.*
A. WARBURTON, Vine House, Haslingden, *Vice-Chairman.*
S. GRATRIX, West Point, Whalley Range, *Hon. Treasurer.*
P. WEATHERS, 60, Talbot Road, Old Trafford, *Hon. Secretary.*
R. ASHWORTH, J.P., Ashlands, Newchurch.
*H. ARTHUR, Mollington Road, Blackburn.
F. W. ASHTON, Enfield, London.
G. S. BALL, Under Fell, Burton, Westmorland.
J. H. BROMILOW, Rann Lea, Rainhill, Liverpool.
J. C. COWAN, Wilderspool, Warrington.
J. CYPHER, Cheltenham.
W. DUCKWORTH, Ribby Hall, Kirkham.
*J. J. HOLDEN, Albert Road, Southport.
DR. HODGKINSON, The Grange, Wilmslow.
W. HOLMES, The Gardens, Hey House, Bolton.
A. J. KEELING, Westgate Hill, Bradford, Yorks.
J. LEEMANN, West Bank House, Heaton Mersey.
C. PARKER, Fern Bank, Ashton-on-Ribble, Preston.
*E. ROGERS, The Gardens, Bridge Hall, Bury.
F. SANDER, St. Albans.
H. H. SMITH, Haywards Heath, Sussex.
W. STEVENS, Stone, Staffs.
E. SHILL, The Gardens, West Point.
H. THORP, Boothroyden, Rhodes.
Z. A. WARD, Cringlewood, Northenden, Cheshire.

H. THORP.

ORCHIDS AT GLOUCESTER.

A Horticultural Exhibition was held at Gloucester from June 23rd to 26th, in connection with the Annual Show of the Royal Agricultural Society, at which there was a very fine display of Orchids and other plants.

A deputation was sent by the Royal Horticultural Society, including Sir Trevor Lawrence, Bart., President, the Rev. W. Wilks, Secretary, Mr. A. E. Bowles, and Mr. H. B. May, and made several awards on behalf of the Society.

Lieut.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), staged a magnificent group of Orchids, to which the Lawrence Gold Medal for the finest exhibit of the year was awarded by the R.H.S. deputation. The group was situated on the central stage in front of the main entrance, and was most artistically arranged. The centre consisted chiefly of a series of fine Læliocattleya Canhamiana, L.-c. Aphrodite, and a few others, which were well carried up at the back, with masses of white Odontoglossum crispum on each side, these being followed to the ends by a lot of well-bloomed Cattleyas and Læliocattleyas. In front of these were batches of Vanda teres, Phalænopsis amabilis, Rimestadiana, Lælia purpurata, Sophrolælia Orpeti, Dendrobium formosum, D. × illustre, and others, while in front were many remarkable specimens of Miltonia vexillaria, completely crowded with flowers, remarkable among them being M. v. superba, with twenty-three spikes and 103 flowers, Empress Augusta Victoria, with twenty spikes and 105 flowers, a couple of good M. v. virginalis with seventy-five and seventy-seven flowers, M. v. chelseiensis, and various others. Brassocattleyas made a fine display, and included some good B.-c. Maronæ and B.-c. Veitchii, the beautiful B.-c. Veitchii Queen Alexandra, B.-c. Siren superba, and others, while Læliocattleyas included the handsome L.-c. Lustre, L.-c. Ganymede, L.-c. Elva Westonbirt var., many fine forms of L.-c. Canhamiana, &c. Cattleyas included the chaste C. × Dusseldorfii Undine, C. intermedia alba, with some good C. Mendelii, C. Warscewiczii, C. Warneri, C. Mossiæ, and the beautiful C. M. Wageneri. Odontoglossums included fine forms of O. × amabile, O. × Wilckeanum imperiale, some dark-coloured O. × Othello, and many others, O. crispum being represented by over a hundred spikes, including many choice varieties. The plants were very finely grown, and the effect of massing the varieties together was most effective. A First-class Certificate was given to Cattleya Mossiæ Countess Grey, a very beautiful tropical form, having enormous magenta-rose blooms with violet marbling on the lip.

In a class for Amateurs a very charming group of 200 square feet was staged by Sir John Dorington, Lypiatt Park, Stroud (gr. Mr. Savegar), which consisted of Orchids with flowering and foliage plants, the Cattleyas being very fine. A Silver Cup was awarded.

Messrs. James Cypher & Sons, Cheltenham, staged a very beautiful group of Orchids, arranged for effect, containing many fine Cattleyas, Læliocattleyas, Brassocattleyas, Odontoglossums, a fine series of Lælia

purpurata, L. tenebrosa, some showy Masdevallias, Vanda cœrulea, Cœlogyne pandurata, a well-bloomed Anguloa Clowesii, Odontoglossum cordatum, Miltonia vexillaria, two distinct forms of Bulbophyllum Lobbii, Epidendrums, Læliocattleya Canhamiana with ten flowers, &c. They also included some good Orchids in a group of Stove and Greenhouse plants not exceeding 350 square feet in extent, these including Odontoglossums, Cattleyas, and Læliocattleyas, with fine specimens of the graceful Oncidium flexuosum, O. divaricatum, &c. For these two groups the Gold Medal of the R.H.S. was given.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, staged a magnificent group of Orchids, in which the Cattleyas and Odontoglossums were very fine, the former including a handsome form of C. Mendelii with a purple feather at the apex of the petals, and another with a slate-blue lip, and the latter some good O. crispum, O. × Adrianæ Low's var., and some good hybrids. A Silver-gilt Flora Medal was awarded.

Some good Odontoglossums and other Orchids were included in groups not exceeding 350 square feet, staged by Mr. Sharp, of Almondbury, Huddersfield, and Mr. Vause, of Leamington, to which Silver-gilt Banksian Medals were given.

THE FIRST "MASTERS" LECTURE.

THE first of the series of lectures arranged to commemorate the name of the late Dr. Maxwell T. Masters, F.R.S., for many years Editor of the *Gardeners' Chronicle*, was given by Professor Hugo de Vries at the meeting of the Royal Horticultural Society held on June 22nd last, the subject being *Masters' Vegetable Teratology*.

The lecturer remarked that the book was to a great extent a narration of observed facts, nevertheless there was evidence on most of its pages of the philosophical mind possessed by its author. The study of abnormalities had a strange history. Before the time of Linnæus genera were regarded as the units of the natural system, but Linnæus elevated species to this rank, in the belief that species were distinct creatures. But the abnormalities which originated in one's own garden were obviously not distinct creations, and were therefore, in the opinion of Linnæus, not worthy of the attention of the serious botanist. This ruling out of court of all deviations from the normal may have contributed to the persistence of a belief in the immutability of species, for with such ideas it was impossible for any progress in the study of evolution to be made.

But if before the general acceptance of a theory of evolution too little attention was paid to the study of abnormalities, it might also be urged that since a belief in evolution had become general, abnormalities had assumed a prominence which was not commensurate with the share which they had

had in the evolutionary process. The theory of evolution demanded the existence of variations, and in the search for these many kinds of abnormalities were collected, which in all probability had little to do with the main lines of differentiation. What we really wanted was some criterion which would enable us to separate the variations to which evolution is due from mere monstrosities which have nothing to do with evolution, and the only hope of obtaining such a criterion was to work on the lines laid down by Masters, to record and figure the structure of abnormalities, of whatever kind, and, what was equally important, find out whether the abnormality was repeated in the offspring. Such investigation had been made possible by the work of Masters, which enabled the enquirer to find out whether an abnormality of a similar kind had been recorded before, and to fit it into a scheme which, as Masters admitted, was only an approximation to a natural one.

Teratology might often succeed in affording a clue to the primitive structure of organs when the investigation of the normal had failed. The study of monstrosities was also likely to throw a great deal of light on the question of the symmetry of distribution of organs in the plant body, and, lastly, we could not guess what problems might not ultimately be solved by a proper acquaintance with these curious phenomena. These were merely illustrations of the truth that the surest road to a knowledge of the normal was the investigation of the abnormal.

The last remark seems particularly applicable to Orchids, in which deviations from normal structure have thrown a flood of light on the homology of the organs of this complex family of plants.

EXCLUSIVE HABITS OF ORCHIDS.

SOME very interesting remarks about the pollination of flowers were made by Mr. B. H. Bentley, of Sheffield University, in a lecture on "Photographic Studies in the Biology of Flowers," which he delivered before a very well-attended meeting of the Literary and Philosophical Society. To a botanist, he said, a flower was a device to secure the production of fertile seeds. The seed must be preceded by pollination, which was the transference of pollen from the anthers of the stamens to a part of the flower known as the stigma, usually that of a different flower. The transference in the earliest flowers was by the wind. Later flowers were pollinated by animals, mostly insects. The evolution of higher flowers and higher insects took place side by side. Mr. Bentley illustrated the different stages of evolution by a series of original photographs from Nature. Among examples of wind pollination were shown the flowers of native grasses, constructed so that the stamens could be shaken by the slightest breath of wind, and

with branched feathery stigmas to catch the pollen floating about in the air. The first plants to feel the want of wind would be the smaller plants, under trees, which would be forced to adopt some other method of pollination. Our wild Arum, and many flowers of tropical forests, attracted lower insects and trapped them often by the aid of a carrion smell. The insects were only set free when pollination was over. Flowers adapted for higher insects had bright colours and scent. Many of the higher flowers—Violets, Snapdragon, Honeysuckle, and others—could only be approached by insects in one direction. They were also constructed in many cases to exclude from the honey any insects that were not likely to pollinate the flowers. The long-tubed honeysuckle was suited to the long-tongued hawk moths. Orchids were constructed so as to gum the pollen on to the head of the visiting insect. This required such a nice adjustment between the insect and the flower that it ended with one Orchid only fitting a single species of bee, butterfly or moth. If the special insect died out, the flowers would no longer be pollinated. The Bee-Orchid was shown as an instance of this excessive specialisation. It had apparently all the mechanism for gumming the pollen on to the head of an insect, yet the pollen was never removed, but fell out, and was blown by the wind on to the stigma of the same flower.—*Journal of Horticulture.*

ERIA RHODOPTERA.

A striking Eria has just flowered at Kew, which was described in 1892 under the name of Eria Laucheana (Kränzl. in *Gard. Chron.*, 1892, i. p. 809). It flowered in the collection of Prince Liechtenstein, at Eisgrab, Moravia, and was dedicated to the head gardener, Mr. Lauche. It was said to have a raceme about half as large as in E. Dillwynii, Hook. (*Bot. Mag.*, t. 4163), and a straw-coloured inflorescence and bracts, with the petals and side lobes of the lip deep black-purple. The locality was not mentioned. The Kew plant was received from Heidelberg, in 1904, when very small. There is an earlier Eria rhodoptera, described by Reichenbach in 1882 (*Gard. Chron.*, 1882, ii. p. 586), which flowered in Messrs. Henderson & Sons' Pineapple Nursery, at Maida Vale, and which from the description I believe to be identical. Reichenbach remarked: "The raceme has flowers much like those of Eria bractescens, of a pallid white ochre colour, with purple petals, and purple side lobes of the lip. For such an Eria it looks uncommonly gay, as its vivid colours are rather scarce in that very wide genus." In this case also the habitat was not recorded. In May, 1895, Messrs. Sander sent to Kew an Eria for determination, without record of habitat, which belongs to the same species as that now flowering at Kew, and, fortunately, it is now possible to clear the matter up. In 1892 a dried specimen of an Eria

was sent for determination by Mr. C. Ford, of the Hong Kong Botanic Garden, which had been obtained from Manila, and was described as very showy, having whitish flowers with claret-coloured lip. The same species was collected by Loher, in April, 1902, in the Philippines, which completely confirms the locality. It is very nearly allied to E. Dillwynii, which is also a Philippine species, but has petals of the same colour as the sepals, and a differently shaped lip, with shorter, pallid side lobes. In E. rhodoptera the inflorescence measures six to eight inches long, and the large and numerous bracts, the inflorescence, pedicels, sepals and front lobe of the lip are all whitish straw-colour, with which the reddish-purple petals and side lobes of the lip form a very striking contrast. It is well worthy of cultivation, the chief drawback being that the flowers in this group do not last very long.

A still earlier Philippine species of the same group is E. longilabris, Lindl. (*Bot. Reg.*, 1838, Misc. p. 38; 1844, t. 29, fig. 3), which was introduced by Cuming, and flowered with Messrs. Loddiges. It has larger flowers, and a much longer lip, though the red side lobes and similar general appearance indicate a very near affinity to E. rhodoptera. R.A.R.

ORCHIDS IN SEASON.

THREE very handsome Odontoglossums are sent from the collection of A. Warburton, Esq., Haslingden, near Manchester, by Mr. Dalgleish. O. × ardentissimum Warburton's var. is a large and finely-shaped flower, having the sepals and petals very heavily and regularly blotched with violet-purple, and broadly margined with white, while the broadly pandurate lip is white with some red-purple blotches round the yellow crest. O. crispum Britannia is a fine thing, having a very large almost rectangular red-brown blotch on each petal, and a few additional dots on the white ground; sepals with smaller blotches and a ground colour tinged with purple, and the broad lip with three irregular elongated blotches in front of the yellow crest. The third is called O. × eximium Warburton's var., and is said to have been raised in the collection from O. crispum Kegeljani × ardentissimum. The shape is excellent, all the segments being very broad, copiously blotched with claret-brown, and margined with white, the blotches themselves being separated by narrow white lines. The lip is white with a large zone of red-brown round the yellow crest, and a few small dots behind. It is as beautiful as the others, and shows its origin very distinctly.

A twin-flowered scape of Paphiopedilum bellatulum is sent from the collection of R. Leslie Cook, Esq., Millfield, Grimsby, who remarks that the plant was obtained with others from Messrs. J. W. Moore early in the year.

A fine four-flowered inflorescence of Paphiopedilum Rothschildianum is sent by His Honour, Judge Philbrick, K.C., Bodogan House, Bournemouth, to show how a good scape can be grown in a tiny house. It is a form with very dark markings, and all the flowers are very finely developed, the result of excellent culture.

Some beautiful Cattleyas are sent from the collection of H. S. Goodson, Esq., Fairlawn, Putney, by Mr. Day. C. Mossiæ Princess Juliana, is a charming white variety, much like C. M. Wageneri, but differing in having a tinge of pink on the front of the lip. C. Mendelii Fairlawn var. has a broad, sharply defined purple band on the upper half of the petals, and is fairly typical in other respects. C. M. Lambeauianum is a pretty blush form, with the front of the lip lilac. A flower of the large and handsome Brassocatlælia Veitchii (Lælia purpurata × Brassocattleya Veitchii) is also sent. The expanse of the flower is over eight inches, and the sepals and petals are rosy lilac, and the front of the broad neatly-fringed lip bright purple, with the disc orange-yellow.

A very fine and richly-coloured form of Cattleya Mossiæ is sent from the collection of Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), under the name of C. M. King Emperor. The sepals and petals are deep rosy lilac, the latter being over four inches long by 2½ inches broad, and the front of the lip rich amethyst purple, with a pale margin and some purple veining on the yellow area at the sides. It belongs to the C. Mossiæ superba type.

An inflorescence of a remarkable form of Odontoglossum crispum, having lip-like petals, is sent by Mr. A. W. Jensen, Lindfield, Haywards Heath. Each petal shows a bright yellow area at the base, lined with red-brown, and terminating in raised crests, like those on the lip, but smaller and less regularly developed. The column wings are only partially developed, and it looks as if part of the vascular bundles which produce the latter had wandered into the petals, thus giving the lip-like character. All the seven flowers of the inflorescence are alike, and as they are quite perfect in other respects, the additional colour on the petals gives them a specially attractive appearance. The plant should be taken care of, for it is probable that the peculiarity will prove constant.

Part of an inflorescence of the handsome Odontioda chelseiensis (Cochlioda vulcanicum × Odontoglossum crispum) is sent by Messrs. Wm. Bull & Sons, Chelsea. The flowers are of good size, very compactly arranged, and of a beautiful carmine-rose shade, with a few traces of light yellow marbling on the sepals, and a three-lobed light yellow lip, with some carmine-rose at the apex of each lobe and a darker blotch in front of the crest. It differs somewhat from the one figured at page 48, and is very beautiful.

Two sprays of a very fine form of Brassia verrucosa are sent from the collection of Sir Benjamin Scott, Linden House, Stanwix, Carlisle. The plants are said to have been in the collection for eighteen years, and bloom very freely. They are beautifully-grown examples of this graceful species.

ORCHIDS FROM WALTON GRANGE.

SEVERAL beautiful flowers are sent from the collection of W. Thompson, Esq., Walton Grange, Stone, including the richly-blotched Odontoglossum × Rolfeæ Walton Grange var., and Mr. Stevens remarks that he has never seen another form that comes near it for colour or distinct markings. There are two seedlings of O. × armainvillierense, having a few purple spots on the sepals and lip, one of them having a very round flower with broad segments. The others are two Odontioda Vuylstekeæ (C. Nœtzliana × O. Pescatorei), differing greatly in colour. One may be described as scarlet with a very few splashes of yellow, chiefly on the lip, while in the other the lip and margins of the sepals and petals are light yellow with only a light scarlet marbling, the latter colour being mostly limited to the central area, giving a very pretty effect. The plants are six years old, and are now flowering for the first time. Mr. Stevens remarks that the O. Vuylstekeæ Crawshayanum, for which Mr. Crawshay received a First-class Certificate from the R.H.S. on May 18th last (*ante*, p. 176) came out of the same batch. It is interesting to see the amount of variation from the same capsule.

NOTES.

The great Summer Show of the Royal Horticultural Society will be held in the grounds of Holland House, Kensington, on Tuesday and Wednesday, July 6th and 7th. The following meeting will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on July 20th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The first August meeting is fixed for August 3rd.

We have not yet received the dates of the Manchester & North of England Orchid Society for the coming year, but we learn that it commences with a meeting on July 1st. It will be seen by the report at page 214 that a series of Cup competitions have again been arranged, one being the Ward Cup for amateurs who do not employ a gardener.

It is with regret that we have to announce the dissolution of the old and well-known firm of Messrs. Hugh Low & Co., formerly of Clapton, and recently of Bush Hill Park, Enfield. By a deed, dated June 15th, 1909, the partnership between Stuart Henry Low and Edward Valentine Low has been dissolved, and by mutual consent neither of the parties will carry on business under the old name. Mr. Stuart H. Low will in future carry on

business at Bush Hill Park, Enfield, under the style of Stuart Low & Co., and Mr. E. V. Low at the Orchid Nursery, Vale Bridge, Haywards Heath, Sussex, under the style of Edward V. Low. Notices on the subject appear in our Advertisement pages. We wish the new firms every success in their future career.

Messrs. Stuart Low & Co. have taken over the lease of the Nurseries at Enfield, with the general stock, and a portion of the Orchids, and have also retained the services of Mr. Harry A. Barnard, Mr. F. W. Ashton and others, with Mr. Edward Tack as Orchid Specialist and Grower, and will carry on both branches of the business, giving special attention to Orchids.

Mr. Edward V. Low has acquired the special portion of the Orchid stock, which has been removed to the Vale Bridge Nursery, Haywards Heath, recently vacated by Messrs. Charlesworth & Co., which he has purchased, and where he intends to specialise in choice Orchids, both species and hybrids, giving particular attention to albino Cattleyas, choice Cypripediums, and others for which the late firm had a decided reputation.

ORCHID PORTRAITS.

ANGRÆCUM SESQUIPEDALE.—*Gard. Chron.*, 1909, i. p. 399, fig. 177.

CYPRIPEDIUM SPECTABILE (at Staffan House).—*Gard. Mag.*, 1909, p. 494, with fig.

DENDROBIUM SANDERÆ, Rolfe.—*Gard. Chron.*, 1909, i. p. 374, fig. 163.

EULOPHIELLA ELIZABETHÆ.—*Gard. Chron.*, 1909, i. p. 407, fig. 178.

LÆLIOCATTLEYA × MIKADO.—*Journ. Hort.*, 1909, i. p. 555, with fig.; *Garden*, 1909, ii. p. 313, with fig.

ODONTIODA × ERNEST HENRY.—*Journ. Hort.*, 1909, i. p. 483, with fig.

ODONTOGLOSSUM MIRUM VAR. EMPEROR OF INDIA.—*Journ. Hort.*, 1909, i. p. 531, with fig.

ODONTOGLOSSUM × PRINCESS VICTORIA ALEXANDRA.—*Gard. Mag.*, 1909, p. 431, with fig.

ONCIDIUM CHARLESWORTHII.—*Gard. Chron.*, 1909, i. p. 377, fig. 166; *Gard. Mag.*, 1909, p. 436, with fig.; *Journ. Hort.*, 1909, i. p. 507, with fig.

PLEUROTHALLIS BIRCHENALLII, Rolfe.—*Gard. Chron.*, 1909, i. p. 391, fig. 173.

VANDA TERES (group of).—*Gard. Chron.*, 1909, i. p. 365, fig. 161.

ANSWERS TO CORRESPONDENTS.

E. St. D. None of the Orchid Manuals contain many so-called Botanical Orchids, and the illustrations of these plants are very scattered.

J. M. A form of Odontoglossum × excellens with a nearly white ground.

C. B., Paris. Cœlogyne flaccida, Lindl., Epidendrum microbulbon, Hook. (5570), Polystachya luteola, Hook. (green). Trigonidium tenue, Lodd. (Guiana), Cirrhopetalum maculosum, Lindl. (5204), Bulbophyllum rufinum, Rchb. f. (1521), Stelis sp. not yet identified (flower dark purple), and Physosiphon Loddigesii, Lindl.

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An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

VOL. XVII.] *AUGUST*, 1909. [No. 200.

DIES ORCHIDIANI.

ANOTHER sensational hybrid has appeared. Not many years ago, the idea of a hybrid between Miltonia vexillaria and Cochlioda Nœtzliana would have provoked a smile of incredulity, in spite of the many successes that had been obtained, for we had begun to find out that a good many Orchids would not cross. They were too distinct, &c. Then came the remarkable Odontioda Vuylstekeæ—sensational was the word at the time, and nothing short of a First-class Certificate and a Silver-gilt Medal would suffice to mark the occasion. Five years have given us at least nine or ten additions, while the original cross has been repeated several times, and Odontiodas now form quite an important garden genus, greatly admired and almost too common to excite remark. Such is progress in hybridisation.

But I am forgetting the new plant. There was a tiny pot at the recent Holland House Show, containing a small seedling which was bearing its first flower. It was placed amidst a sea of other brilliant things, so numerous that a hurried visitor might have missed it, though it would have deserved the dignity of a bell glass of its own, but for the fact that they have now gone out of fashion. That was the new hybrid between Cochlioda Nœtzliana and Miltonia vexillaria. It was a plant that might very well have produced a spike of anything up to a dozen flowers if it had been allowed a little more time, and it seems almost a pity that it attempted to bloom until it got a little bigger. Its portrait was secured and may be seen on another page (p. 233), and I need only add that the colour of the sepals and petals has been described as "deep carmine rose, and that of the lip flesh-pink, with a pair of orange yellow keels at the base." One cannot do justice to such a flower in black and white. The new Certificate of Appreciation was awarded to the plant, and we must now await with patience its full development.

The Holland House Show was, as usual, a great success, with the single exception of the weather, which allowed the plants to get comfortably staged and the visitors there to admire them, after which the rain descended and

the floods almost came, for in some of the places the grass was trodden to a quagmire. But for all that it was a splendid exhibition, not only of the Orchids, but in the manner of exhibiting them, and the *Journal of Horticulture* remarks that it was said on every hand, "What an improvement on the Holland House Show of a year or two ago." The Orchid groups are also described as "no longer set up in dense masses of unrelieved brilliance, but they are arranged in bays and prominences, with graceful ferns and even foliage plants. They form sinuous, varied groups—a great deal prettier, more interesting, and easier to view than used to be the case." Some very pretty dells and grottoes were also to be seen, in which the plants were seen to great advantage. Some of these days we may even see an attempt to arrange the plants as if growing in their native habitats, with the epiphytes as if on their native branches, and the terrestrials on banks and dells beneath. I hope that the reporter of the daily Press will then drop in to do justice to the display.

He dropped in at the last meeting of the R.H.S., as may be seen from the following cutting:—"For any poor soul who has quickly tired of the heat wave and whose eyes are smarting with the dust and glare of it, the Royal Horticultural Show may be much commended. The tired eyesight rests on flowers and flowers, in all their daintiest summer dresses. One feels lifted out of this dull world on billows of glowing colour. . . . . Sparkle the Orchids give us, wonderful, evil-looking creatures, half plant, half fly; and here one like a spread of coral, and here one like a butterfly and a bag, and here one like a beast with long mandibles on the pounce; splashes of ruthless colour, ugly nightmare shapes." I wish he had not so quickly turned away to the other plants.

ARGUS.

ORCHIDS AT WILDERSPOOL, WARRINGTON.

OUR readers will probably remember two articles which appeared in these pages under the above title three years ago (*O.R.*, xiv., pp. 3, 359), in which it was pointed out that Orchid culture in a compost of oak leaves was carried on at Warrington by Mr. William Bolton with great success. We have now seen a sample of the compost, and some of the plants grown in it, and can only say that the result leaves nothing to be desired with regard to their health and vigour. We remarked to Mr. Bolton that a few years ago a great deal was said about culture in leaf-mould, and that many people had tried it, but found that the roots decayed, and consequently the treatment was abandoned, so that we were greatly puzzled at his continued success. He replied, "I am under the impression that the roots went wrong because they were in leaf-mould, or some other mixture that is only fit for carnations or geraniums." That at all events does not describe the

sample of compost sent by Mr. Bolton. It is a mixture of oak leaves and chopped sphagnum moss in about equal parts, the former being gathered in the woods in autumn and kept in the open under a shed until used, when they are rubbed through a half-inch sieve. The leaves are ordinary oak leaves, such as might be gathered in any district where oak trees grow by themselves, for we find no other leaves present. This mixture is pressed firmly into the pots, and the surface is then finished off with a layer of living sphagnum.

Mr. Bolton remarks that this mixture is used for all classes of Orchids except Cypripediums and other terrestrial species. For these about one-third red marl is added to the mixture. This red marl is gathered locally, and a sample of it is sent. It occurs in small nodules, and breaks up readily when rubbed. Mr. Bolton grows about 60,000 plants in his establishment, and he remarks, "It does not matter what variety of Orchid it is, they all do well, and we have no failures, though Warrington is not reckoned to have the best atmosphere for growing Orchids in. We have some of the finest Cypripedium insigne Sanderæ to be found. Odontoglossum hybrids, Oncidiums, and Miltonias are all doing well, and the same may be said of Cattleyas and Cymbidiums. The plants sent are Cattleya labiata, Gaskelliana, Mendelii, Mossiæ, and Warscewiczii, Miltonia vexillaria, Odontoglossum crispum (three), O. luteopurpureum, Oncidium ornithorhyncum, Trichopilia nobilis, and Cypripedium insigne Sanderæ, and they are without exception in rude health and vigour, with leaves perfect to the tips. There is no sign of deterioration anywhere, and this ought to have manifested itself long ago, for the compost has been used long enough to decide its utility. It is also certain that if the plants were not doing so well the treatment would have been changed long ago. It will be very interesting to see how the plants behave when placed among those potted in the more usual fibre compost.

The amount of sphagnum seems large, and should serve to keep the compost sufficiently open, but whether part of it might not be advantageously replaced by some fibre is perhaps matter for experiment. Sphagnum is certainly a moisture-retaining substance, but it should be a very long time before such a compost became in such a state as to rot the roots, as was alleged by those who tried the Belgian leaf mould, and probably the plants would require repotting first. Some years ago it was contended that Orchids could be successfully grown in pure sphagnum, but we do not think such a thing is practiced now.

Mr. Bolton's houses are peculiar in some respects, as may be seen by the articles mentioned, and we hope some day to see them personally, but we should say that the atmosphere within must be in the right condition, which after all is the main thing in Orchid growing. The compost seems

to be a matter of secondary importance, provided always that it contains the necessary food supply, and is of the right mechanical texture with regard to its moisture-retaining qualities. But the food-supply has to come from the compost, and any deficiency in this respect will inevitably be seen in the diminished growth of the plants. The addition of loam or some similar substance is essential in the case of most terrestrial Orchids, and Mr. Bolton seems to find that the marl used answers the purpose. Certainly the plant of Cypripedium insigne Sanderæ mentioned finds the compost and treatment generally all that can be desired.

Mr. Bolton makes a rather amusing reference to his treatment. He says, "According to some ideas, all I do is wrong. My boilers are upside down, my pipes are all wrong in arrangement—only one pipe in each house, or at most only two. My ventilation is wrong, as we have neither top nor bottom air, only a temporary arrangement at each end. The watering is done in a slipshod fashion with a syringe. The pots are all too large; still, it takes us all our time to get the plants to stop inside them."

After all nothing succeeds like success. We take it that the boilers and pipes give the necessary heat. There must be sufficient ventilation or something to keep the atmosphere right. The compost contains the necessary food, with sufficient moisture, and not too much of it, or the plants would not succeed, which after all is the main thing in Orchid growing.

ONCIDIUM BRACHYANDRUM.

AN interesting little Oncidium is sent from the collection of G. H. Peace, Esq., Monton Grange, Monton, near Manchester, which is said to have been imported with Odontoglossum Cervantesii. It is Oncidium brachyandrum, Lindl. (*Sert. Orch.*, sub. t. 25), described from materials collected by Karwinsky, near San Jago el Grande, in the province of Oaxaca, S. Mexico. Lindley did not see the leaves or pseudobulbs. The species was afterwards obtained by Messrs. Veitch, and Mr. Day bought a plant at a sale at Stevens' Rooms in July, 1868, which is said to have been imported with Lælia majalis, albida, &c. The flowers were drawn by Mr. Day in July, 1871 (*Day Orch. Draw.*, xvii. t. 3), and materials were sent to Reichenbach, who wrote a note about it (*Gard. Chron.*, 1871, p. 1163), giving Epidendrum vitellinum as another species with which it was found, so that it is evidently one of the typical mountain species. Day did not draw the pseudobulbs and leaves, but recorded their characters from the imported plants as follows: "Pseudobulbs $1\frac{1}{4}$ by $\frac{3}{4}$ inches, rather stout and sharp-edged, smooth, very pale green, dotted with small purple dots on the upper half. Leaves 2, lanceolate 4 by $\frac{1}{2}$ inches." The scapes bear one or two flowers, with brown sepals and petals, and a yellow broadly pandurate lip. Lindley places the species in his section Integrilabia. R. A. R.

CALENDAR OF OPERATIONS FOR AUGUST.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

ATTENTION must now be paid to getting the Dendrobiums, Cattleyas, Lælia anceps, and other Mexican house Orchids properly ripened, and the shading can be gradually reduced until, by the middle of August, they will only need the blinds for an hour or so in the middle of the day, and then only on very bright days, and by the end of the month they should need no shading at all. As the shading is decreased the ventilation must be increased on bright days, or the leaves will get scalded, but so long as a good circulation of air is maintained they will ripen up very rapidly without any scalds. In ripening, water must not be decreased suddenly, or the bulbs will shrivel; the plants will need a good supply of moisture for some time yet, and should be watered when they become dry, without letting them go for several days. They will dry out very rapidly for some time yet, especially with increased ventilation. Give them a good syringing in the afternoon, and close them up for an hour or so, after which the ventilation can be again gradually put on, so as to get them dry by night again. About three o'clock is early enough for this. These houses will not require damping so often now; once a day will be quite sufficient, especially where syringing is practised during the afternoon. Give the plants every chance to ripen, as the days shorten very rapidly after August.

Cypripediums, Phalænopsis, Odontoglossums, and all soft foliaged plants that have been shaded with double blinds should be gradually used to more light, so that only one blind will be required by the end of August. Where the glass has been stippled with flour and water it is a good plan to go over it with a dry brush and rub off what will come off easily, then about a week or so after, go over it with a hose pipe and brush, and clean the glass thoroughly. The blinds will be quite sufficient afterwards, but where no blinds are used of course the stippling must be left on longer. As the shading is reduced the ventilation must be increased on all favourable occasions until the plants get used to the stronger light, and with a little care no scalding need occur. The moisture in these houses must not be decreased to the same extent as in the case of the harder growing plants, or thrip will soon make its appearance. The plants must be carefully watched for some time, as thrip soon spoils the appearance of an otherwise healthy plant. Light fumigating will check these insects, or spraying with a reliable insecticide will prevent them making any headway. Plants that are suspended from the roof must be carefully watched and not allowed to suffer from want of water, as they dry much more quickly than those farther away from the glass, and if nothing happens to be dry on the stages, they are apt to get overlooked. Keep the houses well damped for

some time yet, and do not check the plants in any way if it can be avoided.

ODONTOGLOSSUM CRISPUM.—Towards the end of this month is one of the best seasons for potting Odontoglossum crispum, and any of the hybrids that have their growths about half made up, for the cooler conditions outside and the heavy dews at night help them to get established quickly. Do not overpot, or it will take two seasons before a good spike can be got out of the plant, and be careful not to break more roots than is absolutely necessary, especially in repotting specimen plants. Remove all useless back bulbs, and if they are needed for propagation, they can be potted up in small pots, and placed by themselves where they can have a little extra attention, especially when they are valuable varieties. Two bulbs and the young growth are quite enough to leave on, especially in the case of specimen plants, as then they will go on for several seasons without repotting. Turn the young growth inwards, not over the edge of the pots, and then they will root into the compost, instead of over the side of the pot. The same thing applies in repotting the smaller plants. When the old bulbs have been removed the plant will repot into the same size, or just one size larger, and if the young growth is in the centre of the pot it will give it, and also the next bulb, plenty of room to root without getting over the side of the pot and looking unsightly. Work the material carefully in between the roots, and not push all the roots to the bottom of the pot, as is so often done, and then wonder why the plant does not grow, when all the time the fault is to be found in the potting. For a compost, use three parts polypodium fibre or fern fibre and one part leaves, and top the plants neatly with clean moss. Do not get the plants above the rim of the pots. Stage all newly-potted plants by themselves, so that no mistakes will occur in watering, and syringe them overhead several times daily until they get re-established. Plants that do not need repotting but are looking shabby should have all the old moss carefully picked out and re-topped with fresh, which will be a great aid to the new roots, and also make the plants look much smarter. When using a lot of new moss a sharp look-out must be kept for slugs, for no matter how well moss is washed, slugs always make their appearance after it has been on for a short time. Lettuce leaves laid on the stages are a very good trap for them, especially when looked over with a lamp after dark. By this means they can soon be cleared out with a little trouble. With open stages slugs have not much chance of hiding, but where ash stages are used it is much more trouble to get rid of them.

ODONTOGLOSSUM GRANDE will be pushing up its spikes, and will require plenty of water until the flowers are open. These should be placed in an airy position, and close to the glass, then they will make sturdy spikes and

fine flowers. They like a fair amount of sunshine, and the cool end of the Cattleya house will suit them. Slugs must be kept down, or they quickly destroy the spikes. They are very fond of the spikes and young roots.

CŒLOGYNE CRISTATA and its varieties should now be given plenty of light. The shading should be gradually removed, and the plants placed near the glass, so as to give them every chance to ripen their bulbs as they finish growing. An early vinery, where there is plenty of air circulating, is just the place for them, especially if there is a gable end facing the south, where they can get plenty of sunshine. The better the bulbs are ripened the longer the flowers will last. They must be given an ample supply of water for some time yet, and occasional waterings with liquid manure will be a great help to them, especially when they have been in the same pan or basket for several seasons.

THUNIAS will have finished flowering, and should be given similar treatment. A vinery will suit them to finish up their growths in. They should be given plenty of water, with manure-water at alternate waterings. As soon as the leaves commence to turn yellow, water must be gradually decreased until the bulbs have shed all their foliage, and then the plants should be placed in a cool position. They will not require watering again until they commence to grow in the spring.

PLEIONES will have finished their growth, and should be suspended from the roof of the Mexican house. Give plenty of water until the foliage falls, after which they will only need sufficient to keep the bulbs plump until the flower buds appear, when the supply must be increased until the flowers are developed. After flowering very little watering will be required until they commence to grow again in the spring.

CYPRIPEDIUMS.—The early flowering varieties will be showing their spikes, and as soon as these are large enough they should have a stake placed to each. Especially on specimen plants is this necessary, as often the leaves will keep the buds underneath them unless they are released, and a stake put in to keep them off the buds. When each bud is given a fair chance they will generally flower altogether, and make a much finer show than they do when neglected and flowering irregularly. Plants that are flowering should be staged together, as then a little extra care can be taken in watering. When they are staged amongst the growing plants the buds are liable to get broken off when reaching over them with a watering can, and then a year's work is thrown away. The plants should be kept syringed on nice days until the flowers open, when the syringing should be stopped until the flowers are over. When not using the syringe the plants must be looked over every day to see if any require water, as if allowed to get dry the flowers will be small. While the plants are pushing up their spikes they should be kept up near the glass, to encourage them to make sturdy

spikes. Before staging them in their flowering quarters the glass should be washed down inside, as when a lot of water has been used during the summer the glass always gets dirty. Pots should also be washed, and everything be kept as clean as possible. Dirty pots look bad, and are not a help to the plants, although some growers contend that they help to hold moisture for the plants. Certainly a dirty pot will not dry out as quickly as a clean one, but the plants have not the same chance to keep healthy in the former. Clean pots also help to keep down slugs, and although slugs do not as a rule bother Cypripediums, yet they get carrried from one house to another when moving plants about.

TEMPERATURES.—By the end of this month the houses will have to be more carefully watched at night, as we often get chilly nights, and the temperatures should not be allowed to drop suddenly, as often a lot of harm will be done before the plants get properly hardened to stand the winter well. Damping should be done a little earlier in houses that do not dry quickly, to give them a chance to dry before nightfall. Plants do not object to moisture condensing on the leaves so long as the temperature does not drop below normal. The temperatures should be kept about as follows at night, allowing a rise of 5° during the day time with fire heat, or 10° with sun heat :—

Cool house, 55°.
Intermediate house, 60°.
Cattleya house, 65°.
East Indian house, or stove, 70°.

Of course if we should get warm nights one need not stick to these temperatures, but at present there is not much prospect of getting warmer weather. These figures are given as a guide for fire heat, if it is needed, and on cold nights they should not be allowed to drop below the temperatures given.

THE OSMUNDA FIBRE FUNGUS.—In some collections a white fungus has appeared on the surface of the soil where the above-named fibre has been incorporated with the potting mixture. So far as I can gather no harm has been done to the plants, and in time it disappears; but still it is rather unsightly, and for this reason it should be carefully picked out with a pointed stick and burnt. I mention these facts so that any grower using Osmunda which has produced this fungus should not condemn it on that account, for it is indeed a first-class ingredient for repotting most Orchids, and one wonders why it has not been more largely employed as a rooting medium hitherto. I have seen a similar fungus (if not exactly the same) on peat, which has been traced to bad storage, such as being tightly packed in boxes or sacks while in a damp condition.—T. ANSTISS in *Journal of Horticulture.*

MILTONIODA HARWOODII.

THE annexed figure represents a very interesting generic hybrid, which was raised by Messrs. Charlesworth & Co., Haywards Heath, from Cochlioda Nœtzliana ♀ and Miltonia vexillaria ♂, and which received a Certificate of Appreciation at the Holland House Show, under the name of Miltonioda Harwoodii. It was a tiny plant producing its first flower, as may be seen

Fig. 18. MILTONIODA HARWOODII.

by the figure, which is reproduced from a photograph kindly sent by the raisers, but which gives a very imperfect idea of what the hybrid will be like when it becomes strong. The flower, as will be seen, has taken the general shape of the Miltonia parent, especially in the entire spreading lip, but the colour of the flower shows more of the influence of the pollen parent.

The sepals and petals may be described as deep carmine rose, and the lip deep flesh pink, with a pair of orange keels at the base. The column wings are lilac-purple, and approach those of the Cochlioda parent in shape. The colour is very brilliant, and the plant should develop into a fine thing when it becomes strong, for the Miltonia parent produces a spike of several flowers, and the Cochlioda parent quite a long raceme. Only one hybrid between Cochlioda and Miltonia is known to have flowered, namely Miltonioda Lindeni, which was described at page 58 of the present volume, and whose parentage is not quite certain, though it is believed to have been derived from Cochlioda vulcanica and Miltonia Phalænopsis. Other seedlings between the two genera are in existence, and the next few years may witness some striking developments. Quite recently the existence of hybrid seedlings between Cochlioda and Ada and between Cochlioda and Oncidium have been recorded, and the linking up of other allied genera is probably only a question of time. The progress made in hybridisation during recent years is indeed remarkable, and the field for experiment in the future seems inexhaustible, for the hybrids themselves are so frequently fertile when again intercrossed.

NATURAL SELECTION AND THE ORIGIN OF SPECIES.

IN the course of an interesting address given at the recent Darwin Celebrations at Cambridge, Prof. Ray Lankester remarked that after fifty years of examination and testing, Darwin's theory of the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life, remained whole and sound and convincing, in spite of every attempt to upset it. In the judgment of those best acquainted with living things in their actual living surroundings, natural selection retained the position which Darwin claimed for it of being the principal means of the modification of organic forms. The nature of organic variation, and the character of the variations upon which natural selection can and does act, were not neglected or misapprehended by Darwin, and the notion that these variations are large or sudden was considered by him, and for reasons set forth at considerable length rejected. In regard to the important facts of heredity connected with the cross-breeding of cultivated varieties, especially the blending or non-blending of their characters in their offspring, and the question of prepotency, it was important to recall the full and careful consideration given to this subject by Darwin. We could not doubt that he would have been deeply interested in the numerical and statistical results associated with the name of Mendel. These results tended to throw light on the mechanisms concerned in hereditary transmission, but it could not be shown that they were opposed in any way to Darwin's great theoretical structure, his doctrine of the origin of species. It had often been urged

against Darwin that he did not explain the origin of variation, and especially that he did not show how variations of sufficient moment to be selected for preservation in the struggle for existence have in the first place originated. A brief reply to the first objection was that variation is a common attribute of many natural substances of which living matter is only one, and to the second that Darwin described with special emphasis instances of what he terms correlated variability, which furnished the key to the explanation of what are called useless specific characters and incipient organs. That key consisted in the fact that a general physiological property or character of utility is often selected and perpetuated which carries with it distinct, even remote, correlated growths and peculiarities obvious to our eyes, yet having no functional value, though at a later stage in the history of such a form these correlated growths might acquire value and become the subject of selection.

ORCHIDS BY COLOUR PHOTOGRAPHY.

SOME of our readers are interested in the application of colour photography to Orchids, and we have now had the pleasure of seeing some examples taken by the new Lumière process.

Mr. G. Hirchfeldt Hansen, of Copenhagen, who recently paid a visit to England as a member of the International Congress of Applied Chemistry, showed us three very beautiful specimens of the art, one showing a plant of Phalænopsis amabilis Rimestadiana, another of Cattleya intermedia, and a third a group of Orchids in the nursery of Mr. J. Waterspadt, Copenhagen. The colours were very faithfully rendered, and the third photograph mentioned formed a pretty severe test of the process, for it showed plants of Cattleya labiata, Lælia autumnalis, Lycaste Skinneri, Phalænopsis Schilleriana, P. amabilis Rimestadiana, and Paphiopedilum niveum, all within the limits of quarter plate size ($4\frac{1}{4}$ by $3\frac{1}{4}$ inches), so that the flowers were greatly reduced, but we were able to identify them all at once with a pocket lens of low power. Mr. Hansen says that the photographs come out well as lantern slides, which we can well understand, being both accurate in drawing and colouring.

The others mentioned are two groups of Orchids taken by Mr. C. P. Raffill, of Kew, which are also very beautiful. The first group shows Cattleya Bowringiana, Læliocattleya Canhamiana, Oncidium varicosum Rogersii, Vanda cœrulea, Paphiopedilum Lawrenceanum (not in flower), and some foliage plants behind. The second group shows Cycnoches chlorochilon, Mormodes buccinator, M. badium, Catasetum tabulare, C. quadridens and C. × splendens. The details are necessarily very minute. The other subjects are a group of Chrysanthemums and scarlet Pelargoniums, and a lilac-coloured Crinum, the latter taken as large as the plate will allow.

The effect is very realistic, both drawing and colouring being accurate, but moderate reduction gives the best results, for when a lens is used, the picture has a granular appearance, and a sufficiently high power shows the individual starch grains of which the film is composed, and the effect is lost. The process is not a simple one, but it has the advantage of giving a direct picture, not a negative which has to be reversed by making a print. And of course there is no comparison between the results, for the colour gives a life-like appearance to the picture which no photograph in black and white can possibly have. The accuracy with which such colours as lilac and purple are rendered comes as a revelation to those who have attempted to photograph Cattleyas and similar flowers in their true colour values by the help of yellow screens and isochromatic plates. The process has evidently a great future before it, but unfortunately the pictures cannot be duplicated, the only plan being to repeat the process on a new plate.

A very ingenious method of showing these pictures is to place them upside down in a frame in front of an ordinary window, and at an angle of 45 degrees to a mirror laid upon the table, the picture then appearing in its natural position in the mirror. In the ordinary way they are held up against the light, the colours being visible only by transmitted light.

THE HOLLAND HOUSE SHOW.

THE great Summer Show of the Royal Horticultural Society was held at Holland House, Kensington, on Tuesday and Wednesday, July 6th and 7th, and produced a very fine display of all kinds, though the comfort of visitors was spoiled by heavy rain in the afternoon of the first day. The show of Orchids was magnificent, and the arrangement of the groups excellent. The awards included three Gold and two other medals, two Silver Cups, one First-class Certificate, one Award of Merit, one Certificate of Appreciation, and one Cultural Commendation.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), staged a magnificent group, to which the Society's Gold Medal was awarded. It was over a bay in extent, and very charmingly arranged, the surface being broken by a couple of deep dells, with corresponding elevations in the centre and at the ends, while the culture and quality of the plants was also excellent. The group contained a lot of beautiful Odontoglossums, Miltonia vexillaria, Thunias, Læliocattleyas, Phalænopsis amabilis Rimestadiana, Cattleyas and the various representative genera, some good examples of Cypripedium callosum Sanderæ, C. × Maudiæ, and C. Lawrenceanum, with a few other things being grouped together in the dells. Among handsome things noted we may mention a noble form of Miltonia × Bleuana grandiflora, with two racemes and nine enormous flowers, some good Lælia tenebrosa, Cattleya × Dusseldorfii Undine,

C. Mossiæ Wageneri, a fine Odontioda Bradshawiæ bearing a panicle with two side branches and 26 flowers, O. Charlesworthii with a spike of nine flowers, the beautiful Odontonia Lairesseæ, a fine Odontoglossum × armainvillierense xanthotes, several excellent O. Harryanum, O. hastilabium, a bright yellow Odontoglossum called O. Pescatorei luteum, most like O. Pescatorei in shape, though we think it is a form of O. × excellens, a fine example of O. luteopurpureum Vuylstekeanum, a few good Cochlioda Nœtzliana, a specimen Epidendrum prismatocarpum, Dendrobium Falconeri, Thunia Bensonæ and Marshalliana, some beautiful varieties of Miltonia vexillaria, Disa × Luna, &c.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a fine group, which gained a Silver Cup. The plants were staged with a ground of Asparagus, and contained a large number of showy things, with two clusters of very interesting botanical species, the latter including the pretty Cœlogyne Schilleriana and C. speciosa, Bulbophyllum Dearei, Masdevallia xipheres, M. muscosa, M. tridactylites, M. macrura, M. erythrochæte, M. troglodytes, M. calura, Cirrhopetalum biflorum and pulchrum, Scaphosepalum octhodes, Promenæa xanthina and stapeliodes, Brassia maculata and Keiliana, Nephelaphyllum pulchrum, Physosiphon Loddigesii, Eulophia Ledienii, &c. The back was made up of numerous showy things, and we noted also the beautiful Odontoglossum × Phœbe and others, a fine Sobralia xantholeuca, Læliocattleya Phœbe, with some good L.-c. Canhamiana and Aphrodite, Oncidium macranthum, sarcodes, phymatochilum and others, the charming Odontioda heatonensis, a good example of Epidendrum alatum, with E. × Boundii and E. Wallisii, Thunia Marshalliana, Dendrobium Maccarthiæ, D. nudum, D. Phalænopsis Statterianum, the handsome Barkeria spectabilis, Epiphronitis Veitchii, Lælia grandiflora and the rare L. × lilacina, Brassocattleya Mary, Cypripedium Argus, C. callosum Sanderæ and other interesting things.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), received a Cultural Commendation for a noble specimen of Cattleya Mossiæ Wageneri with 17 flowers.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), sent Odontoglossum crispum Sappho, a very fine white variety blotched with purple-brown on the sepals and petals.

John Rutherford, Esq., Beardwood, Blackwood (gr. Mr. Lupton), sent an interesting group in which we noted forms of Miltonia vexillaria, a large flowered Odontoglossum near O. × Rolfeæ, the handsome O. × Othello, Lælia tenebrosa and the beautiful Walton Grange var., Oncidium Gardneri, Cattleya Mendelii, Cypripediums, and other Orchids.

Messrs. Charlesworth and Co., Haywards Heath, staged a magnificent group of Orchids, over a bay in extent, to which a Gold Medal was awarded.

It was very effectively arranged, several prominent things being grouped in clusters, and giving a very fine effect. Thus we noted two clusters of the brilliant Epidendrum vitellinum, two of Odontoglossum × Rolfeæ, two of Læliocattleya Canhamiana, with a group of Vanda cœrulea, and one of white Cattleyas in front. Among the numerous choice things noted we may mention the brilliant Odontioda Charlesworthii, with several forms of O. Lutetia, Bradshawiæ, Vuylstekeæ and heatonensis, some good Miltonia vexillaria, including a good plant of the beautiful, nearly white variety Queen Alexandra, Anguloa Clowesii and Ruckeri, examples of Odontoglossum Williamsianum, O. × Lairessei, O. × Eleanor and many others, Acineta Humboldtii, good examples of Cymbidium tigrinum, Læliocattleya Fantasia (L.-c. Dominiana × C. Mendelii), having handsome, flamed markings up the centre of the petals, and a richly coloured lip, a good yellow form of L.-c. Hippolyta, Vanda lamellata, Cœlogyne pandurata, Stanhopea tigrina, Aërides Houlletianum with three racemes, several fine Satyrium coriifolium, the green-flowered S. odorum, the handsome Disa polygonoides, D. sagittalis, D. caulescens, D. × Luna, Calanthe veratrifolia, Oncidium Harrisonianum, Lycaste lanipes, Cattleya Eldorado Wallisii, and a fine C. × Edwardii (Schilleriana × Warscewiczii) with seven flowers, the beautiful C. × Warscewiczii var. Mrs. E. Ashworth, Lælia purpurata Terpsichore, a pretty white form tinged with lilac on sides of the lip, Angræcum Eichlerianum, Sophrocattleya Chamberlainii, with numerous other good things, and all excellently cultivated. The new Certificate of Appreciation was given to Miltonioda Harwoodii (C. Noetzliana × Miltonia vexillaria), a very striking novelty producing its first flower, which had carmine rose spreading sepals and petals, and a flesh pink lip with a yellow two-lobed crest at the base. It should develop into a handsome thing. It is figured at page 233.

Messrs. Sander & Sons, St. Albans, also received a Gold Medal for a very large and handsome group, which was charmingly diversified by two deep glades, and the steep banks topped with a lot of Phalænopsis amabilis Rimestadiana and other fine things. The group contained a fine lot of Odontoglossums, among them being some good O. × Rolfeæ, × spectabile × armainvillierense, and × excellens, O. × Lambeauianum brugense, O. × Landolphus (Andersonianum × Rolfeæ), a cream-coloured flower with many reddish-purple spots, many fine Læliocattleya Martinetti, a pretty hybrid from Cattleya Skinneri and Lælia pumila, a very beautiful specimen of Miltonia vexillaria chelseiensis, M. v. The Bride, a beautiful nearly white form, Maxillaria Sanderiana, some good Phalænopsis Sanderiana, several beautiful varieties of Cattleya Mendelii and Mossiæ, a number of C. Warscewiczii, a fine C. Leopoldi, Brassavola Digbyana with five flowers, including a twin-flowered scape, Oncidium leucochilum,

Harrisonianum, and candidum, Aërides Houlletianum, Phaius Humblotii, Renanthera Imschootiana, Dendrobium Dearei, crepidatum, and transparens, Anguloa Clowesii and Ruckeri, Zygopetalum rostatum, a fine Ornithocephalus grandiflorus, Ancistrochilus Thompsonianus, Epidendrum atropurpureum, cochleatum, and a fine E. Frederici-Gulielmi, Pescatorea Klabochorum, Bifrenaria fragrans, Lycaste brevispatha, a fine Nanodes Medusæ, Ansellia humilis, a distinct and pretty Mormodes from Peru with reddish-purple and yellow flowers, while in the dell-like depressions were placed Anguloa Clowesii and Ruckeri, Masdevallia × Courtauldiana, some good M. Harryana, &c., with a number of Cypripedium bellatulum, C. Godefroyæ leucochilum, and other dwarf things. A First-class Certificate was given to Læliocattleya Martinetii var. The Prince, a very fine form, with bronzy orange sepals and petals and a rich purple lip, and an Award of Merit to Cattleya Mossiæ Wageneri Sanderæ, a very beautiful albino of the species.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, staged a very fine group of Orchids, containing many good Cattleyas, Læliocattleya Canhamiana, Aphrodite and others, Odontoglossums, Miltonia vexillaria, and a lot of graceful Oncidiums, including O. varicosum Rogersii, leucochilum, Kramerianum, sphacelatum, divaricatum, prætextum, and olivaceum, with a number of rarer things, including the charming little Sigmatostalix Eliæ, Masdevallia calura and tridactylites, Cochlioda sanguinea and Nœtzliana, Bulbophyllum galbinum, B. saurocephalum, Cirrhopetalum guttulatum, a good plant of the graceful Cœlogyne Dayana, Pleurothallis pulchella, Epidendrum Parkinsonianum and some good E. vitellinum, Lycaste costata and Deppei, Anguloa eburnea, Eria armeniaca, Cattleya × fulvescens, the pretty Chysis × Sedeni, Thunia Bensonæ, Vanda Kimballiana, Odontoglossum × mulus, the handsome Læliocattleya Lustre, with a few Dendrobiums and other good things. A Silver Cup was awarded for Orchids, Carnations, &c.

Messrs. J. W. Moore & Co., Rawdon, Leeds, received a Silver-gilt Flora Medal for a very beautiful group, well banked up behind and with a deep grotto in the centre. The group contained a lot of good Miltonia vexillaria, Odontoglossum crispum and others, several very strong and well-bloomed plants of the handsome Cochlioda Nœtzliana, one bearing five racemes, a fine plant of Cœlogyne asperata, Broughtonia sanguinea, a dark form of Catasetum cernuum, Nanodes Medusæ, Bulbophyllum barbigerum, leopardinum, Dearei and saurocephalum, Oncidium macranthum, Lanceanum, olivaceum and the curious O. abortivum, Brassolælia Helen, Odontoglossum Williamsianum, O. × Wilckeanum, Promenæa citrina, Trichopilia coccinea, Brassavola Digbyana, Angræcum modestum, Eria acervata, Vanda cœrulescens Boxallii, Galeandra lacustris, Paphiopedilum

glaucophyllum, P. × calloso-Rothschildianum with a four-flowered spike, Physosiphon Loddigesii, a species of Stelis, Masdevallia calura, Miltonia Phalænopsis, Disa × Luna, Epidendrum vitellinum and the rare E. Brassavolæ, some good Cattleya Warscewiczii, and other fine things.

Mr. E. V. Low, Orchid Nursery, Vale Bridge, Haywards Heath, sent a small group of choice things, including the beautiful Lælia tenebrosa Walton Grange var., Cypripedium callosum Sanderæ, C. × Gowerianum magnificum, Odontoglossum × armainvillierense xanthotes, O. Pescatorei virginale, O. × illustre, Cœlogyne pandurata, a light coloured Odontioda Goodsonæ, Bulbophyllum siamense, Cattleya × Madame Myra Peeters, three plants of the beautiful C. Mossiæ Wageneri, the best bearing six flowers, C. M. Vale Bridge var., differing from the preceding in having a slight tinge of lilac on the front of the lip, and a few other good things.

Mr. G. Bornemann, Blankenburg, Harz, Germany, sent a number of hybrids Disas, which unfortunately were damaged in transit, and no particulars of parentage were given.

A fine inflorescence of Orchis hircina, "found growing near Dover," was included in the group of herbaceous plants shown by Messrs. G. & A. Clarke, Dover. We believe that it is from the same source as the one shown last year, then preserved in formalin (see *O.R.* xvi. p. 246).

Miss M. Waters Anson, Dovedale, Lewin Road, Streatham, showed a collection of about forty excellent paintings of Orchids, to which a Silver-gilt Flora Medal was awarded. The paintings were artistic, and the details very faithfully given, even the complex crest of Cœlogyne pandurata bearing close examination with a lens. The group contained many choice certificated Orchids.

INTERESTING ORCHID LECTURE.—The second meeting of the new session of the Bristol and District Gardeners' Mutual Improvement Association was held on June 24th, when Colonel Carey Batten, the President of the Association, gave an interesting half-hour's talk upon "Orchids." The Colonel directed special attention to things not to be done in Orchid cultivation. He also gave some examples of potting. showing the right method of placing the crocks (length downwards, not flat), This was done in glass vessels, so that the potting material could be seen when finished, and proved very instructive. As an object lesson some seedling Cypripediums were shown, each potted in different compost, as loam, loam and peat, and peat and moss. There was but little variation in the growth to be seen. The Colonel said he failed to grow Cypripedium bellatulum until he planted it in the joint of a wall, where it is now thriving. In conclusion, the members were favoured with a demonstration upon hybridising.—*Journal of Horticulture.*

BRASSOCATTLEYA SANDHAGHENSIS.

THE annexed figure represents a very interesting hybrid from the collection of Mr. Gustav H. Müller, Huis Sandhaghe, Den Haage, Holland, and is reproduced from a photograph kindly sent by him. The cross is given as Brassavola Digbyana × Cattleya Schilleriana, and it will be seen that both the dwarf habit and the floral structure of the Cattleya parent come out very strongly in the hybrid. The lip is very strongly three-lobed, and both the front and side lobes are beautifully fringed, the side lobes being infolded round the column. Unfortunately we cannot yet state the colour, as Mr. Müller was not able to send a flower, but he has promised to do so when

Fig. 19. BRASSOCATTLEYA SANDHAGHENSIS.

another seedling blooms. The sepals and petals, however, appear to be dark in colour, while the lip is delicately veined with a darker tint when examined with a lens, though this character is not quite so obvious in the reproduction. As regards the shape of the flower, it is most comparable with Brassocattleya Pluto, derived from C. granulosa and B. Digbyana, but it has a very much dwarfer habit, and the resemblance in floral structure may be attributed to the fact that in both C. Schilleriana and C. granulosa the lip is very deeply three-lobed, and the side lobes acute. It is a very interesting addition to the group, and has probably not yet reached its full development.

SOCIETIES.

ROYAL HORTICULTURAL.

THE first meeting after the Holland House Show was held at the Royal Horticultural Hall, Vincent Square, Westminster, on July 20th, and produced a very fine display of Orchids. The awards consisted of four medals, three Cultural Commendations, two Awards of Merit, and three Botanical Certificates.

F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), received a Silver Flora Medal for a very fine group, consisting chiefly of well-grown and flowered Odontoglossum crispum, noteworthy among them being O. crispum Madonna, bearing a fine spike of beautiful pure white flowers, with a yellow disc to the lip, and O. c. Mrs. J. W. Whiteley, with handsomely blotched sepals and lip.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), sent several interesting and beautiful things, including the rare Calanthe japonica, with bright purple flowers, Cirrhopetalum papillosum (Rolfe), a very interesting little Siamese species, characterised by its papillose-hispid lateral sepals, a very beautiful plant of Vanda × Miss Joaquim (teres × Hookeriana), bearing five fine spikes of flowers, and about a dozen and a half well-grown and flowered plants of the brilliant Habenaria rhodochila, which made a fine display. Cultural Commendations were given to Mr. White for the two latter.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting little group, including the rare Cirrhopetalum Macræi, a good C. biflorum, a Javan species bearing long purplish flowers, Bulbophyllum cocoinum, B. laxiflorum, a graceful white-flowered species, Masdevallia trichæte, Nephelaphyllum pulchrum, Odontoglossum × Astarte (Harryanum × tripudians), Læliocattleya epicasta, Gatton Park var., a very showy thing, and Lælia × gattonensis (L. anceps Dawsoni × cinnabrosa), having bright yellow sepals and petals, and the lip veined with claret-purple. An Award of Merit was given to Spathoglottis plicata alba, a very pretty albino of the species.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), showed Odontioda Charlesworthii, a remarkably well-grown plant, bearing two spikes of seven and eight fine flowers, from the leading pseudobulb. A Cultural Commendation was deservedly awarded.

Eustace F. Clark, Esq., Chamonix, Teignmouth, sent a flower of Cypripedium × Eustaceanum (superbiens × Argus).

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontioda gattonensis, derived from Odontoglossum Kegeljani and Cochlioda Nœtzliana, Odontoglossum Astarte (Harryanum × tripudians),

O. × Nerissa rosefieldiensis (nævium × crispum), a very charming little hybrid, and a very handsome Odontoglossum called O. × Queen Alexandra var. Magnificence, having broad yellow sepals and petals, heavily blotched with olive brown, and the lip white at the apex, and handsomely marked with violet below.

Lieut.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), sent Læliocattleya × Antigone Westonbirt var. (L. purpurata × C. Schilleriana), a handsome form with rosy-lilac sepals and petals, and the front of the lip ruby purple, and L.-c. Radium (L.-c. Antigone × C. Warscewiczii), a very fine hybrid, having rose-purple sepals and petals, and the front lobe of the lip bright ruby crimson, somewhat darker in the throat.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent the handsome Brassocattleya × Maronæ (C. Warscewiczii × B. Digbyana).

Messrs. Sander & Sons, St. Albans, staged a handsome group, which gained a Silver Flora Medal. It contained some handsome Læliocattleyas, noteworthy among them being a richly-coloured form of L.-c. Ophir, and a handsome example of L.-c. Clive var. broomfieldensis, some good Vanda cœrulea, the beautiful Cattleya Warscewiczii Sanderiana, Cypripedium × Mabeliæ var. Lord Derby, a pretty Sophrocatlælia, derived from C. Harrisoniana and Sophrolælia læta, Odontoglossum × spectabile brugense (crispum × Harryanum), a very large and richly-blotched form, and various other handsome things. An Award of Merit was given to Odontoglossum × ardentissium Starlight (nobile × crispum Starlight), a beautiful hybrid, having mauve-pink sepals and petals, with numerous small purple spots, arranged much in the same way as in the pollen parent, and the lip white, with some red-brown blotches in front of the crest. A Botanical Certificate was given to Megaclinium Arnoldianum, an ally of M. falcatum, but having lighter coloured flowers, arranged on either side of a very narrow rachis.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a choice group, including some beautiful examples of Vanda cœrulea, a plant of the rare V. × Charlesworthii, a natural hybrid between V. cœrulea and V. Bensoni, a well-flowered batch of Epidendrum vitellinum, Cattleya Gaskelliana alba, a pretty white form of C. Mossiæ, with pink freckling on the front of the lip, a very beautiful Sobralia macrantha alba, Bifrenaria tetragona, Miltonia vexillaria albiflora, a pretty Læliocattleya derived from L.-c. Phœbe × Ascania, having bronzy-red sepals and petals, and a purple lip, Dendrobium superbum giganteum, Disa sagittalis, Satyrium membranaceum, and other pretty South African species, Odontoglossum crispum, some good O. × Rolfeæ, and other Odontoglossums.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, also received a Silver Flora Medal for a fine group, including a lot of fine Cattleya

Gaskelliana, ranging from purple to white, Dendrobium thyrsiflorum, the handsome D. regium, Odontoglossum Pescatorei, with a handsome spike of thirty-five flowers, some good O. crispum, Epidendrum vitellinum, Oncidium macranthum, and other well-flowered species, Brassocattleya Pocahontas alba (C. Eldorado alba × B. Digbyana), Cypripedium niveum, C. × Juno, Drewett's var., &c.

Mr. Gurney Wilson, Haywards Heath, sent the handsome Brassocattleya Veitchii, Glenthorne var., bearing four flowers, and Oncidium pumilum, a dwarf Brazilian species, with very fleshy leaves, and small panicles of numerous yellow flowers, the latter receiving a Botanical Certificate.

Mr. G. Bailey, Burgess Hill, sent a few good plants of Odontoglossum crispum.

Messrs. William Bull & Son, Chelsea, sent a batch of about two dozen of the pretty Læliocattleya Norba (C. Mossiæ × L. xanthina).

Mr. J. H. Hill, Burgess Hill, sent a small group of Oncidium macranthum, Miltonia vexillaria, and other Orchids.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AT the meeting held at the Coal Exchange, Manchester, on July 1st, the first meeting of the new Session, only a moderate number of plants were staged. The Committee sat as follows: Messrs. E. Ashworth (Chairman), R. Ashworth, Ward, Cowan, Arthur, Shill, Thorp, Keeling, Holmes, Ashton, Parker, and Weathers (Hon. Sec.).

J. H. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), staged a good group of Cypripediums, for which he was awarded a Silver Medal. I noted a fine plant of C. callosum Sanderæ, with nearly a dozen flowers, worthily obtaining a Cultural Certificate. The group also included C. × Cetewayo, C. × Gowerianum magnificum, C. × Euryades, Heaton var., C. × Princess, C. × Czarina, C. × Perfection, &c.

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a mixed group of plants, all well grown. I noted good plants of Odontoglossum cordatum, O. × Lambeauianum, O. × concinnum, Dendrobium atroviolaceum, also several Læliocattleyas, Miltonias, &c. (Silver Medal).

Chas. Parker, Esq., Fern Bank, Ashton-on-Ribble, showed a small but select group of Cypripediums, gaining a Silver Medal. C. × Lawrence-Ashburtonæ received an Award of Merit. Other plants were C. × Gowerianum, Birkinshaw's var., C. callosum Sanderæ, C. × Maudiæ, C. × Lawrenceanum Hyeanum, C. Rothschildianum, &c.

H. Arthur, Esq., Mollington Road, Blackburn, gained a Bronze Medal for a small group of Oncidiums, comprising plants of O. curtum, O. crispum, and O. Gardneri.

Elijah Ashworth, Esq., Harefield Hall, Wilmslow, showed Cattleya Mendelii Bluntii, E. Ashworth's var., and C. Mossiæ Reineckiana var. Mr. Jno. Ashworth, the latter having a large amount of golden colouring in the lip. Both received First-class Certificates.

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), showed two plants of Odontoglossum crispum xanthotes, one of which, called Beeches var., gained a First-class Certificate.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), showed the fine Odontoglossum × armainvillierense Robsonæ (First-class Certificate), and O. × eximium Warburton's var. (Award of Merit).

J. Rutherford, Esq., M.P., Blackburn (gr. Mr. Lupton), received Awards of Merit for Odontoglossum × percultum, Beardwood var., and O. × amabile var. Fairlight.

Dr. Hodgkinson, The Grange, Wilmslow (gr. Mr. Woore), showed Cypripedium Godefroyæ xanthochilum var. Dorothy (Award of Merit), C. niveum, C. bellatulum, &c.

Mrs. Bolton, Heightside, Newchurch (gr. Mr. Eastwood), showed the fine Odontoglossum × excellens var. R. Ashworth, which gained an Award of Merit.

J. J. Holden, Esq., Albert Road, Southport (gr. Mr. Johnson), showed Læliocattleya Eudora var. Archieana (Award of Merit).

Mr. J. Robson, Altrincham, staged a small group, which included a good Odontoglossum × amabile, Epidendrum vitellinum, Miltonia vexillaria, and some good seedling Cypripediums.

Messrs. Keeling & Sons, Westgate Hill, Bradford, staged a mixed group, in which I noted Bulbophyllum saurocephalum, B. biflorum, Restrepia Dayana, Renanthera Imschootiana, Miltonia Phalænopsis, &c.

Mr. J. Birchenall, Alderley Edge, showed Lycaste costata, Anguloa eburnea, and Sigmatostalix Eliæ (Botanical Certificate).

Mr. W. Bolton, Warrington, showed a fine seedling Cypripedium obtained from C. Gowerianum × Lawrenceanum.

At the meeting held on July 22nd a fair show of plants was exhibited. The Committee present were: Messrs. E. Ashworth (Chairman), Thorp, Ward, Cowan, Arthur, Leemann, Keeling, Holmes, Ashton, Parker, and Weathers (Hon. Sec.).

A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), staged a good group of well-grown Odontoglossums, chiefly O. crispum, with O. × armainvillierense Robsonæ, O. Harryanum, O. × Lambeauianum Purple Gem (Silver Medal).

J. Rutherford, Esq., M.P., Blackburn (gr. Mr. Lupton), staged a nice group, containing several Cattleya Gaskelliana alba, a fine plant of

Odontoglossum × Rolfeæ (Cultural Certificate), O. × ardentissimum, &c. A First-class Certificate was given to Cattleya Gaskelliana alba var. Cyme, and an Award of Merit to C. Harrisoniana violacea (Silver Medal).

R. Ashworth, Esq., J.P., Ashlands, Newchurch (gr. Mr. Fletcher), staged a fine group of mixed plants, which gained a Silver Medal. I noted fine plants of Miltonia vexillaria, Odontoglossum × excellens, O. × ardentissimum, and several Cypripediums.

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a miscellaneous group which gained a Silver Medal. I noted a fine plant of Miltonia candida grandiflora (Cultural Certificate), Cattleya Leopoldi, C. Harrisoniana, Brassia verrucosa, Odontoglossum cordatum, Phalænopsis Rimestadiana, &c.

J. H. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), gained a Silver Medal for a nice group of Cypripediums, C. × Fallax (gigas Cordeanii × Charlesworthii), a fine hybrid with the Charlesworthii blood very prominent, gaining a First-class Certificate. I noted also several plants of C. niveum, C. bellatulum, C. × triumphans, C. × Gowerianum Schofield's var., C. callosum Sanderæ, C. × Euryades, Heaton var., &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a group of Cattleyas, Lælias, &c., which gained a Silver Medal, while Brasso-cattleya × Pluto and Læliocattleya Aphrodite alba both received Awards of Merit.

Chas. Parker, Esq., Ashton-on-Ribble, gained a Bronze Medal for a small group of Cypripediums, including C. × Gowerianum, C. × Harrisianum superbum, C. Curtisii, C. × Maudiæ, &c. C. × Ultor, Fern Bank var., received an Award of Merit.

H. Thorp, Esq., Boothroyden, Rhodes, showed a group of miscellaneous plants which gained a Bronze Medal.

J. H. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), gained a First-class Certificate for a grand plant of Miltonia vexillaria Queen Alexandra, a similar award going to Odontioda Charlesworthii, Craven's var., a small plant bearing three flowers of bright brick-red colour. Miltonia vexillaria var. Fairy Queen received an Award of Merit.

Z. A. Ward, Esq., Cringlewood, Northenden (gr. Mr. Weatherby), showed a fine form of Odontoglossum × spectabile, having a large flower with dark marbling (Award of Merit).

Ed. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), gained a First-class Certificate for a good form of Odontoglossum × armainvillierense xanthotes. He also sent a plant of Cypripedium × Olga Bagshawe.

H. Arthur, Esq., Blackburn, gained an Award of Merit for Oncidium Gardneri magnificum.

Mr. J. Young, St. Albans, sent a group of choice things, in which I

noted Cattleya gigas, C. Gaskelliana, Cypripedium × Ultor var. Youngii, C. Curtisii virescens, and several good Odontoglossums.

Messrs. Keeling, Westgate Hill, Bradford, sent Cypripedium callosum Sanderæ, Miltonia × Bleuana nobilior, and Cirrhopetalum Roxburghii (Second-class Botanical Certificate). Oncidium dasytyle and Cypripedium × Rothschildiano-augustum both gained Awards of Merit.

Mr. W. Shackleton, Great Horton, Bradford, showed Odontoglossum × armainvillierense xanthotes and Cypripedium Godefroyæ.

Mr. J. Birchenall, Alderley Edge, showed two plants of Anguloa Clowesii, and Sigmatostalix Eliæ, curiously flowering a second time on a flower spike which was exhibited at the Temple Show.

Messrs. Sander & Sons, St. Albans, sent a few plants, which included a fine Cypripedium × St. Albans, C. × Felicity, Odontoglossum × ardentissimum, &c.

Mr. J. Robson, Altrincham, sent Cattleya gigas, &c. H. THORP.

ORCHID COLLECTIONS ROUND MANCHESTER.

(*Continued from page* 206.)

THE BRIDGE HALL COLLECTION.—The collection of O. O. Wrigley, Esq., Bridge Hall, Bury, is one of the oldest in the district, and an interesting communication from Mr. Wrigley on Cypripedium insigne appeared at page 365 of our first volume. It must have been soon after that we had the pleasure of seeing the collection, and Mr. Wrigley, in a letter, remarks that the climate and surroundings have become considerably worse since then, and consequently he has to grow such things as will stand the smoke and fogs of the district, hence his main collection consists of Cypripediums and a few other things which flower in the summer months.

Several houses are devoted to Orchids, and in looking through them in company with Mr. Rogers, who has had charge of the collection for a good many years, we found many interesting things in bloom. We first entered a Cypripedium house and saw some thriving plants of C. Fairrieanum, and Mr. Rogers remarked that they were grown in peat and loam, about half of each, with the addition of a little tufa to keep the compost open.

In a Cool Intermediate house we found the brilliant Epidendrum vitellinum in bloom, with Oncidium concolor and the rare Cypripedium virens. C. insigne Gladys was pointed out as a true albino, being clear yellow, without even the brown hairs seen on the petals of C. i. Sanderianum. It was not in bloom, but there was no trace of markings anywhere in the foliage. Vanda cœrulea was also growing very well here. A few plants of Vanda cœrulea were also placed in a house of Clivias, where the temperature is cooler in winter than in the Intermediate house, and the plants were doing quite as well. Oncidium Wentworthianum was in bud here.

In the front of a stove we found a number of Cattleyas, &c., with a few others hanging up, and noticed in bloom examples of C. Lawrenceana, C. intermedia alba and Læliocattleya highburiensis. We also observed good plants of Oncidium Lanceanum, O. splendidum and O. ampliatum.

The Odontoglossum house is new and very well arranged, and the plants were in good condition. We noted a lot of O. crispum, of which a few were in bloom, with examples of O. Edwardii and O. triumphans.

Lycaste Skinneri is a great favourite with Mr. Wrigley, and in great demand for cut flowers, one side of a house being devoted to a large batch of them, all in the most vigorous health, and one bulb measured as much as six inches long. In this connection we may mention the beautiful plant of L. Skinneri alba, which was figured at page 113 of our last volume. Both this and various fine coloured forms were well represented. Anguloa Clowesii grows very well with the Lycastes. The other side of the house was devoted to Cypripediums, all the plants being in robust health, and including a lot of C. × nitens, × Hera, and various other winter-blooming kinds, for which the collection is famous.

Another Cypripedium house is largely devoted to choice forms of C. insigne and its hybrids, which all appear strong and healthy, and among a few others we noted in bloom a good C. × Beeckmanii, C. glaucophyllum, some good C. × Maudiæ, about a dozen and a half fine blooms of C. Mastersianum, a favourite kind, C. × Mabeliæ, several good C. × gigas Corndeanii, and a lot of C. × Gowerianum. Some seed capsules were also noticed here.

In other houses we saw a lot of C. Argus and C. × Maudiæ in bloom, with examples of C. callosum Sanderæ, C. × Phœbus, C. barbatum, C. Lawrenceanum, C. L. Owenianum, a very beautiful form with greyish-white marbled leaves, C. × Katharine, a pretty hybrid from C. callosum Sanderæ and C. superbiens, with various others which must be passed over. We also noted a lot of seedlings, and may recall the fact that hybridising has been carried on here for a good many years.

One side of a Pelargonium house was devoted to Odontoglossum grande, and the plants are said to have been grown here for twenty years. A few nice plants of O. grande aureum were pointed out, and we saw an example of Bifrenaria Harrisonæ in bloom. In the next house we saw a lot of Odontoglossum crispum and some good Cymbidiums.

We then came to a Warm Cypripedium house and found C. Rothschildianum in bloom, with many C. barbatum, × Gowerianum, Lawrenceanum, and its richly-coloured variety atrorubens, also some C. niveum, which is doing well in a compost of loam and tufa. C. bellatulum album was in bud. Some Anœctochili were grown in a small frame.

The Dendrobiums were doing well suspended from the roof, and we

noticed a lot of good D. Phalænopsis. We also saw examples of Brassavola Digbyana, and some good Lælia majalis in bud.

These notes were taken on the occasion of a rather hasty visit, during which we saw that Orchids were both extensively and well grown, and although the fog fiend makes too frequent incursions into the district during the winter, still Mr. Wrigley and his able gardener, Mr. Rogers, can point to a great amount of success, and especially in the favourite Cypripedium group, which makes such a fine display at Bury during the autumn.

(To be concluded.)

THE EVOLUTION OF THE ORCHIDACEÆ.

(Continued from page 196).

IN our last paper we outlined the characters of the Australasian subtribe Diurideæ, and before proceeding to the Neottieæ it may be interesting to mention a few special genera of the former group, some of which show a high degree of specialisation in the perianth. The genus Corysanthes may be compared with a dwarf Pogonia of the section Nervilia as regards habit and the consistence of the pollen, but the perianth is remarkably complex Both leaf and flowers are usually solitary, the latter being proportionately large, and the lip broadly tubular, with an oblique, fringed or denticulate mouth, and situated under the large, hood-shaped dorsal sepal, the lateral sepals and petals being very small. Fitzgerald says that the plants are to be found among leaves and sticks, and insects crawling through the mass of rotten vegetation may readily enter the funnel-shaped lip. The column is short, the pollinia very friable, crumbling at the slightest touch, and the viscus from the rostellum copious, but the details of fertilisation do not appear to have been made out, though Fitzgerald had little doubt that small insects of various kinds crawl into the lip and fertilise the flowers. The genus occurs also in New Zealand and Indo-Malaya.

Pterostylis is a genus of upwards of thirty Australian and New Zealand species. The dorsal sepal and petals form a large hood over the column, while the lateral sepals reflex underneath. The lip is sensitive, and when the flower opens it reflexes over the lateral sepals, forming a landing stage in front of the flower. When an insect alights on the lip the latter springs up, carrying with it the insect, which is thus imprisoned in a small box, from which it can only escape by crawling out between the column wings and over the anther, and in doing this it gets smeared with viscid matter from the rostellum, to which the pollen masses adhere, and on repeating the process on another flower the pollen grains adhere to the stigma and fertilisation is effected. If the insects are excluded seeds are not produced. The lips remain closed for some time, and on re-opening is again sensitive to a touch. The flowers are frequented by small flies.

Caladenia is another large and characteristic Australian genus, with spreading and often narrow sepals and petals—hence some of them are called "Spider Orchids"—and a broad recurved lip, which is usually densely studied with rows of papillæ, and is attached at the base of the column by a slender elastic hinge, not unlike that of Bulbophyllum. Fitzgerald has recorded seeing a fly alight on the lip, which by the spring of the latter was thrown against the column, and on struggling to escape brought away the pollen masses and smeared them on the stigma. In another case a flower of C. dimorpha was pollinated in the same way by a house fly in an ordinary room, and Fitzgerald believes that some such large insects are the principal agents of fertilisation in the genus. If covered up the species fail to produce seed.

Drakæa is a genus of four species of what are known as "Hammer Orchids," from the shape of the lip and the fact that it is attached to a long stalk. The blade of the lip trembles in the wind, but Fitzgerald could not make out the significance of the peculiar mechanism, "unless," he remarks, "it is useful as a decoy to insects from its resemblance to one in form and motion." Bauerlen, however, observes that in D. Hunteriana "at the slightest touch the labellum snatches across to the anther and stigma, subsequently returning with slowness to its remote position," and the specific name of D. irritabilis was given by F. Mueller in reference to a similar property.

Caleana is a genus of four species, closely allied to Drakæa, in which the method of fertilisation was a mystery, but after long watching and examination was at last found out. The lip is uppermost, and is held in a state of unstable equilibrium by means of a narrow elastic hinge, while the column is expanded and forms a cup beneath. When an insect alights on the lip its weight brings down the column, and it is fairly caught in the cup, bringing away the pollen masses on escaping, when the lip again rights itself. These details were made out by experiment, but it is uncertain by what particular insect the flowers are normally fertilised.

Thelynitra is another characteristic Australasian genus which shows evidence of degeneration, for some of the species are self-fertilised and in some cases the flowers fail to open, yet, Fitzgerald remarks, there is a viscid rostellum, and other structures adapted for cross-fertilisation are present, and in some cases the flowers are fertilised by insects. The perianth is regular, with six nearly equal segments, which are blue, purple, pink or yellow in the different species. The column wings are usually fringed or bear papillæ, and in some cases they are stalked. There are upwards of thirty species.

Some of the Diurideæ have small and inconspicuous flowers, and thus it will be seen that a very wide range of diversity may be seen within the

limits of a single group, and that species having primitive characters in one part of the flower may show a high degree of specialisation in others.

The subtribe Vanilleæ is very similar to Arethuseæ in the structure of the anther and pollinia. Bentham includes in it the genus Vanilla, which is widely diffused through the tropics, Galeola, extending from India and Japan to Australia, Eriaxis, a monotypic genus from New Caledonia, with the American genera Epistephium, Sertifera and Sobralia.

Vanilla differs completely in habit from anything we have yet considered. It is a genus of tall climbers, and the much elongated fleshy stems produce aërial roots at the nodes, which besides absorbing nutriment act also as tendrils in supporting the climbing stems. The flowers are borne in racemes or clusters toward the apex of the stems, and are very complex in structure. The lip is united to the margins of the column for a considerable distance, and then reflexes at the mouth, forming a tube and a landing stage on which the fertilising insects alight. These, according to Deltiel, are small bees of the genus Melipone, which visit the flower for the honey which is copiously secreted at the base of the tube. The disc of the lip bears a crest consisting of imbricating scales pointing downwards, and forming a sort of stiff hinged brush, which would allow an insect to enter the flower, but on retreating cause it to press closely against the column. There are two prominent column wings, and the stigma is situated beneath the flap-like rostellum. The pollen grains are simple, and held together by viscid matter, not by elastic threads. The insect on retreating from the flower would first push back the flap-like rostellum and then bring away the pollen messes, and when the process was repeated on another flower the latter would adhere to the stigma. V. planifolia, the Vanilla of commerce, is a native of Central America, where the flowers are fertilised by small bees, but elsewhere hand fertilisation has to be resorted to. The genus contains over fifty species, and in one small section of about a dozen species the plants have become leafless the work of nutrition being carried on by the chlorophyll in the green fleshy stems. The genus may be said to combine the terrestrial and epiphytic habit, for the plants grow in the first place in the soil, but derive part of their food from the aërial roots produced by the stems. The fruits are fleshy, and the seeds roundish, with a smooth shining crustaceous testa.

Galeola is an allied genus of terrestrial leafless saprophytes, which Ridley remarks appear in the most unexpected places, sometimes covering old stumps, or climbing up the tree trunks in thick jungle, sometimes in hot and exposed grass fields, and even clambering on the roofs of native huts. The stems also produce aërial roots, and the flowers are borne in large terminal panicles, and closely resemble those of Vanilla in structure. The fruit is capsular, and the seeds broadly winged.

Eriaxis rigida is a very curious New Caledonia monotype, having very

hairy brown flowers, and the lip violet-rose, with a longitudinal yellow crest of deflexed toothed scales on the disc, passing into clavate hairs at the base. The flowers are much like those of Vanilla in structure. Bentham reduces it to Galeola, but it has green leaves, closely resembling those of Epistephium, though it has not the little cupulate calyculus found at the base of the perianth of that genus. It was very imperfectly described by Reichenbach, and I am inclined to think that the plant described and figured by Kränzlin under the name of Epistephium Regis-Alberti (*Xen. Orch.*, iii. p. 158, t. 291) is the same species.

Epistephium is a Tropical American genus of about a dozen species, having showy purple flowers much like those of Vanilla in structure, but in habit it is nearer Sobralia. It is readily distinguished from its allies by the presence of a small cupulate calyculus at the base of the perianth. E. Williamsii, Hook. f. (*Bot. Mag.*, t. 5485), is the only one I know to have been in cultivation.

R. A. ROLFE.

(To be continued.)

ORCHIDS IN SEASON.

A CHARMING blush-white form of Cattleya Mendelii, having a large light purple marbled blotch in front of the yellow disc, is sent from the collection of James Geddes, Esq., Ascot. It is from a plant imported in 1907, now producing a four-flowered spike for the first time.

A very fine form of Cattleya Warneri is sent from the collection of P. C. P. Lupton, Esq,, Wellingtons, Southminster, Essex, also a good form of Læliocattleya Schilleriana. They are from a large collection made during a long residence in the State of Rio Paulo, Brazil, with a few others purchased or given by friends there.

Several interesting Orchids are sent from the collection of J. J. Neale, Esq., Penarth, by Mr. Haddon. A plant of Thunia × Veitchiana has produced a branched inflorescence, there being a side branch with two flowers. Mr. Haddon does not remember such a thing before, but remarks that the plants are very strong this year. He also mentions a plant of Brassia verrucosa with eight spikes, and some good plants of Epidendrum vitellinum with six, making a good show. Flowers are also sent of the handsome Lælia grandiflora (majalis), Cattleya Aclandiæ, a good form of Læliocattleya Measuresii (C. maxima × L. pumila præstans), good blotched forms of Odontoglossum crispum, O. × Fascinator, Bifrenaria vitelliana, Dendrobium mutabile, the rare Masdevallia O'Brieniana, M. demissa, Lycaste aromatica, Maxillaria tenuifolia, the handsome Epiphronitis Veitchii, Paphiopedilum Parishii, and various familiar species which flower at this season of the year, from which it is evident that there is now a fine show of bloom in the collection.

Two pretty hybrids are sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham. One is believed to be Lælia × splendens, derived from L. crispa and L. purpurata, as it has white sepals and petals, and the front of the lip purple with a much crisped pale margin. The other has buff yellow sepals and petals, and a deep purple lip with some yellow at the base and apex. It is believed to be a form of L. × Pacavia. Mr. Mackay remarks that they are seedlings which were purchased under quite different parentage—in fact both should have been Læliocattleyas, but there are eight pollinia in each case, and we believe that the parentage above given is correct

A three-flowered inflorescence of what is evidently a hybrid of Cattleya granulosa and Lælia purpurata is sent by his Honour Judge Philbrick, K.C., Bodorgan House, Bournemouth. The flowers are large, the sepals and petals whitish, and the lip very deeply three-lobed, with a long isthmus to the front lobe, which is purple behind and white with purple veins in front, while the tips of the front lobes are also purple. It is a form of Læliocattleya burbagensis.

We have received flowers of several handsomely blotched Odontoglossums from Mr. John Robson, of Altrincham, but unfortunately without names or parentage, though they are evidently seedlings of garden origin, one apparently being a very dark form of O. × armainvillierense, and all probably contain O. crispum in some form or other.

A very fine dark form of Odontoglossum Harryanum is sent from the collection of John S. Moss, Esq., Wintershill Hall, Bishops Waltham, by Mr. Kench. The flower measures four inches across its broadest diameter, and the segments are also very broad and of a rich dark, almost blackish purple.

A very fine inflorescence of Odontioda Charlesworthii superba with eight flowers is sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens. It is one of two spikes from the plant which received a Cultural Commendation at the last meeting of the R.H.S. The sepals and petals are deep ruby crimson, and the lip bright brick-red with an orange-yellow disc. It was originally purchased from Messrs. Charlesworth and Co. Flowers of four seedlings of Odontoglossum × Rolfeæ from the same pod are also sent, showing much variation, and all beautiful.

A flower of Cattleya Warscewiczii rubens is sent from the collection of Richard Ashworth, Esq., Ashlands, Newchurch, Manchester, by Mr. Fletcher. The sepals and petals are bright rose purple, with a darker band near the apex and some darker marbling on the basal half, and the lip is very dark purple crimson, with the eye-like blotches rather small. He also sends a flower of Odontoglossum × excellens var. Richard Ashworth, from a panicle of forty-two flowers. It is a very distinct and pretty form, having a white ground and purple-brown blotches on the sepals and lip.

A magnificent form of Cattleya Gaskelliana alba, called Richard Ashworth's var., is sent from the collection of A. Warburton, Esq., Vine House, Haslingden, by Mr. Dalgleish, together with a flower of the handsome Odontoglossum × ardentissimum Robsonæ, which received a First-class Certificate at the Temple Show two years ago, and was figured at page 241 of our fifteenth volume. The plant has this year borne two spikes, each with five very fine flowers.

RAISING HARDY ORCHIDS FROM SEED.

A CORRESPONDENT asks if there is any way of raising hardy Orchids from seed. The question may be answered in the affirmative, and in fact was dealt with very fully in our first volume (pp. 246-248), where the methods adopted by three different raisers were detailed. One of them is M. Moë, Curator of the Botanic Gardens at Christiana, who is said to have succeeded in raising nearly all the Orchids indigenous to Scandinavia, including Epipactis.

The essential points seem to be to provide a suitable soil and situation, and to prevent the seedlings from being choked with taller things and from being disturbed when at rest. A few Orchises are often grown in a border or on a rockwork, and are occasionally found where they are not known to have been planted, particularly in clumps of dwarf-growing things which have not been disturbed for some time. It is believed that these are self-sown seedlings, which have not been noticed until large enough to flower, and the fact affords a useful hint. A few compartments of the rockwork might be planted with various dwarf alpines, among which the Orchid seeds could be scattered. The alpines would form a carpet to the soil, and give shade to the young seedlings, also protecting them from disturbance when at rest, and all the grower need do would be to give a little water when necessary and await the result. A difficulty might often be found in obtaining seeds, unless one had already a stock of plants. Some species will only succeed in a calcareous soil, but one raiser remarks that a mixture of two parts of loam, one of leaf mould and one of sand, with an admixture of a little lime, is sufficient for most kinds. The species also differ in their requirements with respect to shade and moisture, but suitable spots could often be chosen in accordance with these varying needs.

A carpet of some dwarf vegetation seems necessary, both for shade and to protect the surface from disturbance when the plants are at rest, for a bare spot almost invites disturbance, with disastrous results to any tiny tubers that may be underneath.

The seeds of these hardy Orchids mature and ripen very quickly as compared with the tropical epiphytic species, and we have seen capsules

ripen in two months from the time of flowering, and the seeds were perfectly plump and good when examined under the microscope.

We should be glad to hear of any one who has made experiments in raising seedlings, and especially of any experiments in hybridising. Natural hybrids are not at all rare on the Continent, and a few have been found in Britain, and their production by hand should present very little difficulty if the seedlings could be grown.

NOTES.

THREE meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during August, on the 3rd, 17th and 31st, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

No meeting of the Manchester and North of England Orchid Society will be held during August. The date of the next meeting is September 9th. The Society has again arranged a very attractive programme for the 1909-10 session. There are five Cup competitions. The Charlesworth Cup, value 50 guineas, is again offered to the amateur exhibitor who gains the largest number of points for plants which have not previously been certificated by the Society, with a prize of five guineas to the gardener. The Ward Cup for amateurs who grow Orchids without the aid of a gardener is to be competed for according to the Society's table of points, and to be won outright in the session. The Sander Cup for Cypripediums, value 50 guineas, is limited to amateurs, and must be won twice, not necessarily in succession. A prize of five guineas will be given to the gardener. Stuart Low & Co.'s Cup is for Cattleyas, Lælias and allies, and is limited to amateurs, with a prize of five guineas to the gardener. The Robson Cup for Odontoglossums, value 40 guineas, will be given to the amateur who gains the highest number of points for Odontoglossums, with a prize of five guineas to the gardener.

The fine group of Dendrobiums exhibited by Messrs. Armstrong & Brown at the R.H.S. meeting held on April 6th last, and to which the Society's Gold Medal was awarded, is figured in the *Gardeners' Chronicle* for July 3rd as a supplementary illustration.

R.H.S. ORCHID COMMITTEE.—Some interesting Orchids have appeared at recent meetings of the Orchid Committee, and the following notes are extracted from the report :—

May 4th, 1909 :—

HYBRID ORCHIDS.—Mr. Rolfe showed flowers of Epidendrum evectum (purple) and E. xanthinum (yellow) and the hybrid raised by crossing them (= E. × kewense, of a salmon colour). He also showed flowers of E. ×

kewense crossed with E. evectum, producing a hybrid having purple flowers (but not of the same shade as E. evectum), and of E. × kewense crossed with E. xanthinum, this cross bearing flowers resembling E. × kewense. When E. × kewense was self-pollinated it reproduced flowers of three sorts bearing great resemblance in colour to E. evectum, E. x kewense, and E. xanthinum respectively.

May 18th, 1909:—

ORCHID HYBRIDS.—Mr. G. Wilson sent flowers of seedlings of the cross Dendrobium nobile album × D. Findlayanum (= D. × Cybele). All the seedlings which had flowered (about sixty) had borne coloured flowers approaching D. nobile, with one exception, where the flowers were white with a faint pink tinge.

June 8th, 1909:—

MALFORMED ORCHID.—Mr. Rolfe exhibited an Odontoglossum in which the petals had acquired somewhat the coloration of the lip.—This was the curious Odontoglossum crispum cristatum exhibited by Messrs. Armstrong & Brown, and recorded at page 212.

ORCHID PORTRAITS.

CATTLEYA MOSSIÆ MARIANA.—*Amer. Gard.*, 1909, p. 1216, with fig.

CŒLOGYNE ASPERATA.—*Gard. Chron.*, 1909, ii. p. 34, fig. 15.

CYPRIPEDIUM × CHAPMANII.—*Journ. Hort.*, 1909, ii. p. 75, with fig.

DENDROBIUM THYRSIFLORUM.—*Journ. Hort.*, 1909, ii. p. 3, with fig.

LÆLIOCATTLEYA BERTHE FOURNIER, WESTONBIRT VAR.—*Journ. Hort.*, 1909, ii. p. 99, with fig.

LÆLIOCATTLEYA MARTINETII VAR. THE PRINCE.—*Gard. Mag.*, 1909, p. 553, with fig.

LÆLIOCATTLEYA MIKADO.—*Gard. Mag.*, 1909, p. 313, with fig.

MILTONIA HARWOODII.—*Journ. Hort.*, 1909, ii. p. 51, with fig.

VANDA CŒRULEA.—*Amer. Gard.*, 1909, p. 1217, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

J.P. Clearly a hybrid from Cattleya granulosa and Lælia purpurata, and thus a form of Læliocattleya burbagensis.

J.W.F. Odontoglossum Lindleyanum.

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An Illustrated Journal of Orchidology.

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NOTICE OF BOOK.

Mendel's Principles of Heredity. By W. Bateson, M.A., F.R.S., V.M.H. 8vo., pp. 396, with three portraits of Mendel, six coloured plates, and 33 figures and diagrams. Cambridge University Press, 1909.

THE object of this book is to give a succinct account of discoveries in regard to heredity made by the application of Mendel's Method of Research, which it is remarked in the preface has reached a point from which classes of phenomena hitherto proverbial for their seeming irregularity, can be recognised as parts of a consistent whole. It is divided into two parts, the first dealing with general principles, while the second contains a biographical notice of Mendel, and translations of his papers on Peas and Hieracium, with a Bibliography and a separate Index of subjects and authors.

The first part contains sixteen chapters, the introductory one dealing with Mendel's Discovery. Then follow, the Material Investigated, Numerical Consequences and Recommendations, no fewer than five dealing with the Heredity of Colour, Genetic Coupling and Spurious Allelomorphism, Heredity and Sex, Double Flowers, Evidence as to Mendelian Inheritance in Man, Intermediates between Varieties and the "Pure Lines" of Johannsen, Miscellaneous Exceptional and Unconformable Phenomena, Biological Conceptions in the Light of Mendelian Discoveries, and Practical Application of Mendelian Principles.

The materials are drawn from a wide field, zoological and botanical, ranging from mice to lepidoptera, and from sweet-peas to Orchids, though the Orchidist will probably be disappointed to find so few facts drawn from his own particular field, considering the enormous number of experiments that have been carried out. But it is explained that the progress of experiments with the extension of Mendelian conceptions has been so rapid that a difficulty was found in presenting the facts adequately within a moderate compass. But the Orchidist will be interested to learn the general principles involved, which he may then be able to apply for himself.

As regards the practical application of Mendel's principles, it is remarked that they "will probably far exceed any limits we can yet perceive," though after the claims that have been put forward it is

disappointing to read, a few lines further on, that "for fanciers Mendelism can as yet do comparatively little . . . two things only. First, . . . it will provide a most fascinating pursuit, which if followed with assiduous care may at any moment lead to some considerable advance in scientific knowledge. Secondly, the principles already ascertained will be found of practical assistance in the formation of new breeds, and may save many mistakes and waste of time. But applied to the business of breeding winners in established breeds they cannot materially help, for almost always the points which tell are too fine to be dealt with in our analysis."

But what is Mendelism? Several attempts have been made to define it, and we have read of Mendel's Laws of Dominance, of Segregation and of Purity. But we are now told that "the dominance of certain characters is often an important but never an essential feature of Mendelian heredity. Those who first treated of Mendel's work most unfortunately fell into the error of enunciating a 'Law of Dominance' as a proposition comparable with the discovery of segregation. Mendel himself enunciates no such law. . . . Mendel's principles of inheritance apply equally to cases where there is no dominance." Mendel's real discovery is thus defined. "The fact of segregation was the essential discovery which Mendel made."

This brings us to Mendel's original paper. He there alludes to the numerous careful observers who had devoted a part of their lives to experiments in plant hybridisation, but expresses the conviction that none of these experiments had been "carried out to such an extent and in such a way as to make it possible to determine the number of different forms under which the offspring of hybrids appear, or to arrange these forms with certainty according to their separate generations, or definitely to ascertain their statistical relations." The paper records the results of such a detailed experiment, carried out for eight successive years with the genus Pisum. We cannot follow him through these experiments, but may remark that they were made by first crossing forms which differed in certain well marked characters, thus obtaining hybrids, and then self-fertilising the hybrids for several generations and classifying the results. At the same time he carefully self-fertilised the original parents to test their constancy. The results are well known, and we may summarise his conclusions with respect to the fundamental process of reproduction.

For the purpose of sexual propagation he points out that one pollen cell and one egg cell unite into a single cell, which is capable by assimilation and formation of new cells of becoming an independent organism. This development follows a constant law, which is founded on the material composition and arrangement of the elements which meet in the cell in a vivifying union. If the uniting cells be of the same kind and agree with the foundation cell [fertilised ovum] of the mother plant, the development of

the new individual will follow the same law which rules the mother. If it chance that an egg cell unite with a *dissimilar* pollen cell, we must then assume that between those elements of both cells which determine opposite characters some sort of compromise is effected. The resulting compound cell becomes the foundation of the hybrid organism, the development of which necessarily follows a different scheme from that obtaining in each of the two original parents. If the compromise be taken to be a complete one, in the sense that dissimilar qualities are, in the hybrid embryo, *entirely and permanently accommodated* together, the further result follows that the hybrids, like any other stable plant species, reproduce themselves truly in their offspring, the reproductive cells formed in their seed vessels and anther cells being of one kind, and agreeing with the fundamental compound cell from which they originated. With regard to those hybrids whose progeny is *variable*, he assumed that between the differentiating elements there also occurs a compromise, in so far that the formation of a cell as foundation of the hybrid becomes possible, though the arrangement between the conflicting elements is only temporary, not enduring throughout the life of the hybrid plant, but as no changes are perceptible during the whole period of vegetation, we must assume that it is only possible for the differentiating elements to liberate themselves from the enforced union when the fertilising cells are developed. In the formation of these cells all existing elements participate in an entirely free and equal arrangement, by which it is only the differentiating ones which mutually separate themselves. In this way the production would be rendered possible of as many sorts of egg and pollen cells as there are combinations possible of the formative elements.

Mendel carefully compared his results with the very different ones obtained by Gärtner and Wichura, in which certain hybrids remained constant in their progeny, and propagated themselves as truly as the pure species, remarking that the correctness of the facts had been guaranteed and could not be doubted—Gärtner indeed had the opportunity of following up the constancy of a hybrid Dianthus to the tenth generation, since it regularly propagated itself in the garden—and he added, "To the history of the evolution of plants this circumstance is of special importance, since constant hybrids acquire the status of new species."

He also made the following very significant remark: "It is more than probable that as regards the variability of cultivated plants there exists a factor which so far has received little attention. Various experiments force us to the conclusion that our cultivated plants with few exceptions are members of various hybrid series, whose further development in conformity with law is varied and interrupted by frequent crossings *inter se*. The circumstance must not be overlooked that cultivated plants are mostly

grown in great numbers and close together, affording the most favourable conditions for reciprocal fertilisation between the varieties present and the species itself. The probability of this is supported by the fact that among the great array of variable forms solitary examples are always found, which in one character or another remains constant, if only foreign influence is carefully excluded. These forms behave precisely as do those that are known to be members of the compound hybrid series."

Mendel thus showed that segregation was not only a quite familiar phenomenon, but also that in some cases it did not occur, and he formed his conclusions accordingly. His paper passed almost unnoticed for thirty years, when suddenly it was brought into the light, and his results with peas were confirmed by other observers. The subsequent extensions of the Mendelian conceptions are treated in the work under review, and some of them would probably have startled Mendel himself, could he have seen them.

Examples drawn from Orchidology are not numerous, and are cited from other sources. Several genera are said to show Mendelian Inheritance of Colour character, and the facts are said to be exactly comparable with sweet-peas. The cases mentioned are albino Cypripediums and Cattleyas. Of the former it is stated that C. callosum Sanderæ × C. bellatulum album gives all coloured offspring, and the same with C. Lawrenceanum Hyeanum × C. bellatulum album, but, on the other hand, C. Lawrenceanum Hyeanum × callosum Sanderæ gives offspring all albinos, and the following conclusion is reached. "If therefore we suppose that bellatulum album is carrying one of the complimentary factors, say C, and that the other factor R is present in callosum Sanderæ and in Lawrenceanum Hyeanum, the results are correctly and consistently represented." In this connection we may recall the case of C. bellatulum album × C. insigne Sanderæ, which failed to give albinos, as we shewed over a year ago (*O.R.*, xvi. p. 105, fig. 18). Again we read: "As regards the behaviour of the pure types, however, there is one occurrence to be recorded which cannot be explained. . . . Lawrenceanum Hyeanum, when selfed, gave 14 albinos, but in addition one coloured plant, which Mr. Cookson tells me cannot be thought to have resulted from error. Such an occurrence is as yet unaccountable." But we do not see why reversion to the normal should be unaccountable.

The case of albino Cattleyas may be summarised thus: "C. Mossiæ Wageneri crossed with both C. Gaskelliana alba and with C. intermedia alba gave all albinos, but when the two latter were united with C. Schrœderæ alba and C. Harrisoniana alba the hybrids were all coloured. But when C. Gaskelliana alba was crossed with C. Warneri alba both albinos and coloured forms resulted. We do not think this quite comparable with the case of the sweet-peas cited, where the intercrossing of two whites gave a purple, "in

appearance actually the original type of sweet-pea," and we must leave it to our author to explain. He remarks: "From these statements it may with great probability be inferred that the albinism of Mossiæ Wageneri Gaskelliana alba and intermedia alba is due to the absence of one factor (say C); that in Harrisoniana alba and Schröderæ alba it is the other complimentary factor which is wanting (say R); and that Warneri alba is heterozygous for the presence of one of them (being Rr, on this scheme). It is to be hoped that some Orchid grower will make the various unknown combinations and extend the series."

The other case taken from Orchidology is called Monolepsis in Orchids, and refers to the notorious example of *Zygopetalum* Mackayi, which, when fertilised with various other Orchids, gives nothing but *Z.* Mackayi, an anomaly which proves no more explainable from the Mendelian standpoint than from any other.

A question of great importance remains, namely the relation of Mendelism to Evolution. The names of Darwin and Wallace naturally occur in this connection, and we read, "Had Mendel's work come into the hands of Darwin, it is not too much to say that the history of the development of evolutionary philosophy would have been different from that which we have witnessed." We also read of the "various plausible but frequently unsatisfying suggestions put forward, especially by Wallace." A remark on another page may be taken in this connection. "The difficulty that some feel in realising the significance of Mendelism arises from the habit of looking on the bodies of animals and plants as *single* structures." But the knowledge that they are "*double*," or that two cells—it may be even from the same individual—unite to form the new generation, helps us little in tracing the evolution of species that breed true from generation to generation. True, it is pointed out that Mendelian discovery does not run counter to the cardinal doctrine that species have arisen by natural selection —and we are heartily glad to find some common standing ground—but we also read that "the conception of Evolution as proceeding through the gradual transformation of masses of individuals through impalpable changes is one that the study of genetics shows immediately to be false." We will omit the word impalpable—it matters not the *amount*, if only variation takes place—and enunciate our profound conviction that it is by this means that what are termed representative species arise. All species do not arise by hybridisation, nor yet by Mendelian segregation following hybridisation.

One further remark in this connection we do not understand. Speaking of the general acceptance of the doctrine of natural selection by scientists, the author remarks there was the remarkable exception that systematists for the most part remain aloof. But two of the greatest systematists of the day were amongst its warmest supporters, namely Sir Joseph Hooker and the late

Dr. Asa Gray, and it seems unlikely that those who kept aloof would have found in Mendelism anything more satisfying.

We may be warm admirers of the thoroughness of Mendel's work, and of the sagacity with which it was planned—especially considering the period—without accepting all the conclusions which it has recently been sought to attach to it. And we may doubt the definiteness of some of the differentiating characters; indeed, Mendel remarked, "some of the characters noted do not admit of a sharp and certain separation, since the difference is of a 'more or less' nature, which it is difficult to define." And if we doubt the definiteness of some of these now-called "units," still more do we question the praticability of ascertaining their nature by Mendelian analysis. For example, Mendel pointed out that if the parents differ in seven characters, the combination series of their union would contain 2,187 various forms. We doubt whether in practice there would be so many, for some would be correlated together, but if their number and kind could only be ascertained by experimental analysis, the magnitude of the task before us staggers the imagination. And organisms have been crossed which differ in more than seven characters.

And we doubt the reality of some of the modern extensions of Mendelism, especially that relating to sex. There are hosts of correlated secondary sexual characters, all of which may be represented in the same individual, as in Catasetum and Cycnoches, only manifesting themselves under certain conditions, and we fail to see the utility of speaking of their presence or absence as due to dominance or recessiveness of the sex factor.

Some of the modern conclusions seem to be entirely "in the air." We read of "imperfect dominance" where an intermediate condition or unconformable factor disturbs the even tenor of the argument. Dominance, where it exists, might be supposed to have some relation to a pre-existing order of things, but our author considers that the idea of dominance being an attribute of the phylogenetically older character has not been borne out by more extended investigation. The continued absence of a lost character when "selfed" and its return when "crossed" might be supposed to have some relation to reversion to the normal, and to the well-known effects of cross and self-fertilisation which obtain in biparental organisms in a state of nature, but we find no mention of it.

Another important consideration is that the organisms obtained under a continuation of strict Mendelian methods are abnormal, and whole hosts of them would in a wild state not survive to leave descendents. Its subjects would largely disappear under the bracing influence of natural selection, a fact which illustrates very well the subordinate position of Mendelism in any attempt to explain the origin of species. That it has contributed its quota to the great fabric of evolutionary philosophy no one doubts, but it does not

explain all the phenomena of variation, and variation is the material on which natural selection works.

The book contains a full exposition of Mendelian methods, and a selection from a large number of experiments made by various observers, whose assistance is acknowledged. Some of the phenomena are also beautifully illustrated. But it is written entirely from the Mendelian standpoint, and contains a good many conclusions which, we believe, have not yet reached finality, and not a few which were absent from Mendel's original essay.

WILD ORCHIDS FROM SEED.

You ask, Mr. Editor, for notes on the successful crossing of our wild Orchids, a subject that has always interested me, though hitherto I have not been successful. The reason, I think, why I have failed is that I have wished to get the bright colour of Orchis mascula into other early flowering species on the Riviera, and so perverse is the way of O. mascula that it will not flower a day earlier in the south of France than it does in England, and so I have failed to get its pollen with which to hybridize O. Robertianum. No one who has ever been at Nancy in the spring can fail to remember the remarkable beds of the finest form of O. mascula which is there used with great success as a spring bedder, and the tubers and roots, grown in the soft leaf mould they there employ, bear transplanting after flowering so as to ripen in reserve beds, with no apparent harm, judging by results. If we could get its colour and vigour into other hardy Orchises it would be a very desirable thing.

Orchis longibracteata, or Robertianum, is an exceptionally handsome and vigorous winter blooming Orchid that is quite common on the Riviera, but many of its forms are dull in colour, so I vainly tried to induce O. mascula to flower at the same time, but with no success. I then tried O. longicalcarata, the Algerian Orchis, as a pollen parent, but hitherto I have seen no trace of it appearing in the seedlings raised. What has succeeded in a wonderful degree is the improvement in colour by only seeding the brightest coloured forms of O. longibracteata, and I now can show perhaps a hundred or more plants of this Orchis with greatly improved colouring. The most important thing, it seems to me, is not to allow more than six seed pods to mature on any stem, however strong it may be. The seed is then so well developed ("fed") that I now have many hundreds of self-sown seedlings coming up in the grass over an area of several acres; and in a few years there will be too many, so rapidly do they grow and increase. The earliest spikes open at Christmastide, and the latest spikes last well into March, so for three months this bold growing Orchis is very handsome in the winter season, and makes one wish for something else as striking.

There are also many Ophryses, but though their flowers are beautiful in

the hand, they make no effect in the grass; indeed most folk will walk over Ophrys aranifera in full flower, with six or seven flowers open on the stem, so curiously harmonised is it to its surroundings of both green and withered winter grasses.

The Ophrys tribe are particularly interesting from their habit of appearing or vanishing without any apparent reason. No doubt some are dormant, or rather only make tuber growth beneath the surface, but the way that strong flowering plants will appear when I am sure they were not in existence the year before, is a continual surprise to me. It is almost equally a certainty that if there is a particularly large group of them one spring, and you put a mark in the grass, so as to be sure of their whereabouts next year, you will more often find none; yet I have known one or two isolated tubers that have come up yearly in the same exact spot for ten years without ever failing. It is one of the elusive charms of the Orchis family to puzzle their admirers by their wayward behaviour!

Scarborough. EDWARD H. WOODALL.

[Orchis longibracteata is the interesting species whose history was given at page 93 of our fourteenth volume, under the title of "An Early Orchis," a plant brought from the Riviera, having flowered in the open air in Norfolk at the end of February. It is a widely distributed Mediterranean species, ranging from Cyprus to the Canary Islands, and found also in North Africa. It is said to flower from January to March. It is figured at t. 357 of the *Botanical Register*, from a plant which flowered at Liverpool about ninety years ago. It is called the Winter Orchid of Sicily, as it flowers in the depth of the Mediterranean winter.—ED.]

PROMENÆA MICROPTERA.

THE pretty little Promenæa microptera has been re-introduced, a plant which was imported growing in a clump of P. stapelioides in Messrs. Stuart Low & Co.'s nursery, proving to belong to this rare species. It was described as long ago as 1881 (Rchb. f. in *Gard. Chron.*, 1881, ii. p. 134). Its habitat was not stated at the time, though the genus so far as at present known is entirely Brazilian. It has the dwarf habit of its allies. The pseudobulbs are elliptical-oblong, and about half an inch long, and the only leaf seen is lanceolate, acute, and 3½ inches long by under half an inch broad. The flowers have an expanse of 1½ inches, and the sepals and petals are light green, lanceolate and acute, while the lip is three-lobed, the basal half white with numerous narrow purple bars, and the front lobe green with about three or four broad purple bars. The column is pale green, with a purple stain at the base. The history of the genus was given about four years ago (*O.R.*, xiii. pp. 260-263). R. A. R.

PHYSOSIPHON LODDIGESII.

THE annexed photograph shows a well-grown specimen of Physosiphon Loddigesii from the collection of Dr. Otto N. Witt, Westend, Berlin. The plant was purchased with others from a gentleman who has grown Orchids for over twenty years, doing everything himself without the assistance of a gardener, but he has had to give up his collection owing to a stroke of paralysis. He told Dr. Witt that it was found as a seedling on the roots of a Mexican Lælia, was taken off and matured, and now it flowers profusely, looking exactly like a Masdevallia when not in bloom, though of course the small brownish-yellow flowers are quite different. The species was originally described and figured by Loddiges, in 1830, under the name of Stelis

Fig. 20. PHYSOSIPHON LODDIGESII.

tubata (*Bot. Cab.*, t. 1601), from a plant which is said to have been collected at Xalapa, by Deppe, but was afterwards made the type of a new genus, by Lindley, on account of the sepals being united at the base into a narrow tube, somewhat inflated at the base and constricted at the mouth, the plant being called Physosiphon Loddigesii (*Lindl. Bot. Reg.*, sub t. 1797). It has since been well figured in the *Botanical Magazine* (t. 4869.) Reichenbach changed the name to Physosiphon tubatus (*Waip. Ann.*, vi. p. 188), and although the Vienna Rules require the adoption of the earliest correct specific name, we prefer to retain the one given by Lindley, on the ground that "tubatus" is incorrect, being obviously a mistake for "tubulatus."

When Lindley established the genus he added a Peruvian and a Brazilian species, these being based on old synonyms, and about a dozen others have since been added. There are now seven Brazilian species, six from Mexico and Central America, and one each from Peru and Colombia. The showiest species known is P. Lindleyi, Rolfe (*Kew Bulletin*, 1893, p. 61), in which the flowers are larger and much darker in colour than in P. Loddigesii. It is a very floriferous and handsome plant. P. Moorei, Hort. (*Kew Hand-List Orch.*, ed. i. p. 189), is the same species.

R. A. R.

CALENDAR OF OPERATIONS FOR SEPTEMBER.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

GENERAL REMARKS.—All shadings should be removed by the second week in this month, as the sun will have lost its burning power. Canvas blinds should be dried and stored away for the winter; any patching can be done in spare time. Where the lath roller blinds are used they should be left on the houses for use in frosty weather. They will be found to make a considerable saving in the coal bill, especially in snowy weather, when they act as a blanket, and it will not be necessary to force the fires. Where permanent shading has been used it should be thoroughly cleansed off the glass. The down spouts into the tanks should be stopped up during these operations, as if allowed to run into the tanks it will soon cause an offensive smell, as well as mark the foliage if the water is used for syringing purposes. All the houses should be scrubbed down inside, and the bare walls limewashed, as this always makes the houses lighter during the winter, especially lean-to houses. All pots and stages should also be scrubbed. Where coke is used on a double stage, this should also be washed through a sieve, and then the stone work swilled off with the hose pipe, which will help considerably in ridding houses of slugs, woodlice, &c., especially if the walls are washed down with hot lime.

RE-STAGING.—When re-staging the houses all plants should be put in their winter quarters, and be raised as near the glass as possible with safety, though if they are too near they are liable to get chilled when it is very cold outside. As plants finish up their growths they must be more carefully watered, but do not allow them to become dry enough to shrivel, or overwater them and cause spot. Try to get the happy medium.

DAMPING DOWN will not require to be done so often now, though the houses should not be neglected. Always keep a nice buoyant atmosphere without getting the houses close and damp. If they are ventilated on every favourable occasion they can easily be kept in good growing condition.

INSECT PESTS.—Should any insect pests make their appearance the houses should be fumigated or sprayed lightly. It is better to do them

twice gently than to give one strong dose. Slugs and cockroaches must be kept down or they will soon destroy a lot of flowers and spikes. They can be trapped with lettuce leaves or in fact any green stuff, and poison for cockroaches and woodlice will generally clear both out in a short time.

TEMPERATURES.—Fires must be carefully looked after now, as a sudden check will do a lot of harm. Night frosts may be expected at any time, and the fires should be kept clean and ready to use at any time that they may be wanted, without having to get the pipes red hot to get up temperatures quickly, which is a sure method of breeding thrip and red spider, as well as causing injury to the plants.

DENDROBIUM FORMOSUM AND D. PHALÆNOPSIS will be in full flower, and should be kept on the dry side as soon as the flowers are fully expanded, when they will last a long time in perfection, especially if staged in a dry house and kept warm. They should not be given a lower temperature than 60° at any time. The Cattleya house is a good place to rest them in; and they should be suspended from the roof at the warm end. They will need very little water until they commence to grow again.

LÆLIAS, CATTLEYAS AND THEIR HYBRIDS.—All the autumn flowering varieties should be carefully watched for water until the flowers are expanded, and with the species and numerous hybrids a fine show can be maintained throughout the winter season. Those which are pushing up their spikes can be staged together at the cooler end of the Cattleya house, and those that are growing can be staged at the warm end of the house. In the case of the hybrids it is almost impossible to rest the whole house, as can be done with species only, for the former are still growing during the winter months. I don't think keeping the house a little warmer and moister to suit the hybrids makes any difference to the species, for they seem to flower just as well as they did when they used to get baked, and certainly there are not as many deaths now as by the old treatment. Where the plants have not been densely shaded during the summer months, they will throw up fine spikes, without shrivelling the bulbs.

In washing down and re-staging this house the plants should be looked over for scale, as it will often be found on the new growths, and if not removed will make the leaves look very unsightly. A light spraying with insecticide after the growths are made up will keep them clean, but if insecticide is used while the growths are young it must be carefully applied, and rather under strength, for if it lodges in the growths they are liable to rot away before the damage can be seen. All young growths should be neatly staked and tied up, for if allowed to bend over in moving about they generally rot off, and not only bulb but flower spike is lost.

Lælia anceps will also be pushing up its spikes, and these should be staked and kept well tied up, as they easily get broken when moving about.

The plants should be given all the light possible, and staged where they can get plenty of fresh air. They are worth a little extra trouble, as they make a beautiful show while they are in flower. They are grand for grouping, as with their long spikes they can be staged at the back, and make a good contrast to the Cattleyas and hybrids. If given plenty of light and air they are easily grown, but they must have plenty of sunshine to get them to flower well. It is no use shrivelling the bulbs to make them flower next year, and if they have not done so this year, give them a light, airy position, and there will be plenty of flowers and good growths.

DENDROBIUMS.—As these finish up their growth they should have the supply of water gradually lessened until they commence to flower. Do not allow the bulbs to shrivel, or the flowers will be small. All the D. nobile, Wardianum, crassinode, Falconeri, aureum, &c., with their hybrids, will do in a temperature of 55° for their resting period. D. thyrsiflorum, spectabile, Gibsoni, fimbriatum, Bensoniæ, Dalhousieanum, Dearei, atroviolaceum, &c., should be kept in the Stove or Cattleya house for the resting season, or in a temperature which does not fall below 60°. All Dendrobes should be given a sunny position to ripen up their bulbs in, and then they will give abundance of flowers. A good syringing on sunny days will help to keep the bulbs plump and avoid over-watering at the roots.

SOPHRONITIS GRANDIFLORA will now be growing freely, and should be removed to slightly warmer quarters until the plants have finished flowering. The cool end of the Cattleya house suits them during the winter months, and with slightly warmer treatment the flowers come much larger and do not spot. They are very showy when in flower, and will require plenty of water until that period.

ODONTOGLOSSUM ROSSII will also be growing freely, and should be given plenty of water during the growing season. Although these are small growers their flowers are very showy, and come in handy for the front row of groups. They should be suspended or staged near the glass to encourage them to make strong growths, and after they have flowered they can be kept on the dry side until they commence to grow again.

ONCIDIUMS.—Many varieties will be pushing up their flower spikes, and these should be carefully staked, and have a piece of cotton wool wrapped round the base of the stem to prevent slugs from getting on the spikes. A very small slug will eat the head off a fine spike in a very short time. The spikes should not be left on the plants too long, as they are easily distressed when carrying a large spike. As soon as the bulb shows signs of shrivelling the spike should be cut, and they will last for a long time in water afterwards if the spikes have a very little piece of the stem nipped off each morning, so that they can get plenty of water to sustain the flowers. The smaller growing section, such as O. ornithorrhynchum, flexuosum, dasytyle

&c., are very pretty when grown in pans or baskets, and the miniature flowers are a great contrast to the more showy varieties.

ODONTOGLOSSUMS which have been newly potted should have the stages and floors damped several times daily until they get re-established, and they should also be sprayed overhead whenever the weather is good. Do not allow the new compost to become dust dry, or as much harm will be done as with over-watering. Water whenever a plant is dry, and give it plenty, not just damp the top and leave the bottom dry, or the bulbs will soon shrivel. The house or the end of it in which the newly-potted plants are staged should not be so freely ventilated until the plants get established again.

A REVISION OF THE GENUS CYCNOCHES.

THE last issue of the *Kew Bulletin* contains a paper by Mr. R. A. Rolfe, bearing the above title, giving an historical account of the genus Cycnoches, accompanied by figures showing the sexes in the two distinct sections which it contains, and an enumeration of species. A summary of the paper may be interesting.

For many years the genus proved an inexplicable puzzle to botanists. Soon after the original species was described, Lindley recorded the occurrence of a second form, which he had no doubt was a second species until both forms were produced on the same plant. A few years later a similar phenomenon was observed in a second species, and the only suggestion offered was that the genus was in a so-called sportive condition, as in the allied genus Catasetum.

The genus was established by Lindley, in 1832, upon a plant which had been sent from Surinan by Lance to Messrs. Loddiges, and which shortly afterwards flowered in their nursery, and was called Cycnoches Loddigesii. The generic name was given in allusion to the gracefully curved column, resembling the neck of a swan.

Four years later, when speaking of the curious behaviour of the genus Catasetum, Lindley mentioned a Cycnoches which had been sent to him by Mr. Wilmer, of Oldfield, near Birmingham, which greatly differed from C. Loddigesii, especially in the very short column, broader, shorter sepals, and in being scentless. This he had no doubt was a distinct species, and called it C. cucullata. But in the following autumn a plant of Cycnoches in the garden of the Horticultural Society produced from opposite sides of the same stem two racemes, one showing the well-known fragrant flowers of C. Loddigesii, and the other the scentless flowers of the new C. cucullata.

In 1837 Cycnoches ventricosum was described, from a plant which had been introduced from Guatemala by Skinner, and flowered in Mr. Bateman's collection at Knypersley. The figure showed an inflorescence of five

flowers (now known to be males), and a seed capsule, the significance of which will presently be apparent. Bateman remarked upon the huge size of the capsule and the innumerable quantity and minuteness of the seed.

In the following year C. chlorochilon was described by Klotzsch, from a plant which had been sent from Caracas by Moritz, and which flowered at Berlin. This species was afterwards confused with C. ventricosum.

In 1840 C. maculatum was described by Lindley, from a plant which flowered in the collection of Mr. Barker, of Birmingham, and which was thought to be a native of Mexico, though it was added that a collector of Messrs. Hugh Low & Co. had found the plant in La Guayra, and the Venezuelan habitat is now known to be correct.

In July, 1842, Bateman figured C. Egertonianum, whose remarkable history is reproduced verbatim, but as this has appeared in these pages, together with a reproduction of the original and a recent figure (*O.R.*, xvi. pp. 296, 297, fig. 38, 39), we need not repeat it.

A year later Lindley published a very interesting figure, which ought to throw further light on the subject. It represented an inflorescence which appeared in the collection of R. S. Holford, Esq,, of Westonbirt, Tetbury, and which was described as showing two purple flowers of C. Egertonianum, one green flower which Lindley called "nearly C. ventricosum," and two flowers in a transition state so far as the colour and shape of the flowers are concerned. The plant was exhibited at a meeting of the Horticultural Society. Lindley was unable to offer any explanation of the significance of the phenomenon, merely remarking that with such cases all ideas of species and stability of structure in the vegetable kingdom were shaken to their foundation.

Other species were successively described, and in 1852 Lindley gave an enumeration of the so-called species of Cycnoches, nine in number, remarking that five of them had not been known to sport. Two of them are now excluded from the genus.

In the same year C. Warscewiczii was described by Reichenbach, on what, from internal evidence and from a flower preserved in Lindley's Herbarium, is now known to be a female of some species of Cycnoches, and distinct from that afterwards figured under the same name.

The discovery of sexuality in the allied genus Catasetum threw the first ray of light upon the subject, but the matter was never cleared up, Darwin merely remarking that "from the analagous differences in the labellum of the sexes in Catasetum we may believe that we here see the male, female, and hermaphrodite forms of Cycnoches." It is now known that the third sex does not exist in either genus.

In 1879 another remarkable example appeared, and was exhibited at a meeting of the Royal Horticultural Society by Mr. W. Bull, of Chelsea,

who received a Botanical Certificate for it. It was called C. Warscewiczii, and was described and figured in the *Gardeners' Chronicle*, as a curious Orchid with green flowers borne on two separate spikes, those on one spike being much larger and totally different in appearance from those on the other—so much so that seen separately they would be taken as belonging to different genera. It was also remarked that the explanation of this and of similar appearances in Catasetum was that the different flowers represented the male and female flowers of the species.

In 1889 a plant of Cycnoches pentadactylon in the collection of Mr. E. Gotto, The Logs, Hampstead Heath, produced flowers of both sexes.

Two years later a new species was described from materials of both sexes which appeared in the collection of Mr. H. J. Ross, of Florence, under the name of C. Rossianum. It had been purchased under the name of C. Warscewiczii, and had flowered on various occasions before January, 1889, when a female flower was produced. This female flower was then thought to belong to a totally different species, but the subsequent production of male flowers and the discovery that there was only a single plant of Cycnoches in the collection established the identity.

In 1891 the female of Cycnoches chlorochilon appeared, first in the collection of M. Houzeau de Lehaie, Hyon, Mons, Belgium, and afterwards on three different plants with Messrs. Sander, at St. Albans. In each of these cases the female only was borne by the plant, but shortly afterwards both sexes appeared on the same plant in M. Houzeau's collection.

By this time it had become increasingly evident that something was wrong with Bateman's figure, which showed two kinds of male flowers on the same pseudobulb, and the receipt shortly afterwards of male flowers of another species led to the re-examination of all the available materials, which showed that an unfortunate mistake had been made, probably through the two kinds of flowers not being borne simultaneously, and the earlier being restored by the help of a drawing. It was unfortunate that the flowers were not preserved, or the mystery might have been cleared up earlier. The re-introduction of the species after a long interval supplied the necessary confirmation. In the autumn of 1894 a living plant of a Cycnoches was sent to Kew from Costa Rica by the late Mr. Ricardo Pfau, which on flowering in April of the following year proved to be C. Egertonianum, and three months later the female flowers also appeared, and proved to be quite different from the green flowers figured by Bateman.

The circumstances just detailed led to a very curious discovery, namely that the flowers depicted by Bateman as produced by the same pseudobulb belonged not only to distinct species, but to distinct sections of the genus, which are described and illustrated in the paper under notice. In the section Eucycnoches, to which C. ventricosum belongs, the sepals, petals

and lip are fairly similar in the two sexes, though there are slight differences in size and texture. In the sexual organs the differences are very marked. In the male the column is very long and slender, arched like the neck of a swan, and bearing the anther at the summit, without a stigma or column wings, while the ovary is reduced to a simple pedicel. In the female the column is very short and stout, with a normal stigma, protected by a pair of triangular, fleshy wings, without an anther, while the pedicel is much stouter than in the male, from the fact that it contains the incipient ovary. In the section Heteranthæ the female is shaped as in Eucycnoches, but the male is usually very much smaller, the sepals and petals much thinner in texture, soon becoming recurved after expansion, and in some cases markedly different in colour, while the lip is reduced to a small, usually rounded disc, margined with clavate teeth. Correlated with the smaller size of the males we find a greatly increased number of flowers, which are borne in a long pendulous raceme. These characters are shown in the four figures which represent C. ventricosum and C. Egertonianum, the female of the former being from a flower which appeared in the collection of Sir Philip Egerton, in 1849, and of the latter from one which appeared at Kew in 1895.

Six species of Eucycnoches are enumerated, namely C. Loddigesii, Lindl., C. ventricosum, Batem., C. chlorochilon, Klotzsch, C. Lehmannii, Rchb. f., C. Haagei, Rodr., and C. versicolor, Rchb. f., of the three latter the males only being known. Of Heteranthæ there are ten species, namely C. Egertonianum, Batem., C. pentadactylon, Lindl., C. stelliferum, Lodd., C. aureum, Lindl., C. Rossianum, Rolfe, C. densiflorum, Rolfe, C. maculatum, Lindl., C. Dianæ, Rchb. f., C. glanduliferum, Rich. & Gal., and C. peruvianum, Rolfe, of the four latter the males only being known. Thus in nine out of the sixteen species both sexes are known. A complete list of figures and references is given under each species, and the synonymy shows that there has been a good deal of confusion, though in only one case does it affect the nomenclature, the species usually known as C. Warscewiczii now appearing as C. stelliferum, Lodd., which arises from the fact that it is not the original C. Warscèwiczii, Rchb. f., which is believed to be the female of C. aureum Lindl.

Two females of doubtful identity are enumerated, one which appeared with Messrs. Sander, in 1895, and is said to have been imported with C. peruvianum, and may therefore be the female of that species, and another which flowered with Messrs. Charlesworth & Co., in 1903, and is said to have been imported with C. chlorochilon, which is suggested as the unknown female of C. maculatum.

It is to be hoped that the increased attention now being given to these interesting plants, may help to complete the history of the genus.

CYCNOCHES MACULATUM.

IT is interesting to record the appearance of the female of another species of Cycnoches so quickly after the publication of the paper summarised in the preceding pages. Three plants of C. maculatum have just bloomed at Kew, and one of them has produced flowers of both sexes, of which a photograph

Fig. 21. CYCNOCHES MACULATUM.

taken by Mr. F. W. Rolfe is reproduced in the annexed figure. The upper inflorescence bore two female flowers, measuring 3½ inches from tip to tip of the petals, so that the figure is a shade over one-third natural size. The sepals and petals of the female are bright green, with a suffusion of olive

brown at the margin, and the lip is porcelain white, with a slight suffusion of greyish green in front and olive green behind, while the column is light green, with a blackish purple blotch at the base. As regards shape little need be said, for the broad, fleshy sepals and petals, the ovate very fleshy lip, and the short column are all well shown in the figure, and contrast strongly with the narrow recurved membranous sepals and petals of the male inflorescence, with its small toothed lip and very slender column. The male inflorescence carried 21 flowers, but the lower nine had to be omitted from the photograph, in order to avoid excessive reduction. The sepals and petals of the male are light green, with a slight brown suffusion and many dark brown spots, and the lip is white. The female flowers were previously unknown, for the plant showing both sexes figured as C. maculatum earlier in the year (*Gard. Chron.* 1909, i., pp. 26, 27, fig. 19) belongs to C. densiflorum, Rolfe, a species which was figured at page 104 of the present volume, and of which the denser inflorescence and much smaller male flowers will be immediately noticed. It is also figured at t. 8268 of the *Botanical Magazine*. The female flower mentioned on page 272 as possibly the unknown female of C. maculatum must also be different, and its identity remains uncertain. A complete collection of the species would form a very attractive feature in a Warm house, besides affording occasional surprises. R. A. ROLFE.

ORCHIDS AT WEST BANK HOUSE, HEATON MERSEY.

THE collection of Orchids brought together by John Leemann, Esq., West Bank House, Heaton Mersey, is probably the finest in the North of England. Within the last three or four years the old Orchid houses have been taken down and rebuilt, with many additions, in a more suitable part of the grounds, and in the rebuilding Mr. Leemann has adopted every modern improvement for the welfare and comfort of his plants. Eight span-roof houses, each 50 ft. long, open into a long heated corridor, 130 ft. long. The houses are double-roofed, the upper roof being raised about seven inches above the lower glass, and between these roofs the air plays quite freely in the summer time, and in the winter the intervening space can be wholly or partially closed, whilst a hot water pipe running between takes the cold edge off the ventilation before entering the houses. Mr. Leemann thinks very highly of this arrangement, particularly in the Cattleya and warmer houses, and the cultural results are everywhere excellent, and certainly justify this extra expense.

On entering the first house we find it devoted to all the best types of spotted and blotched Odontoglossum crispum and hybrids, for which the collection is famous, but brief mention can only be made of a very few. I noted strong plants of Odontoglossum crispum Perfection, O. c. rubellum, O. c. Autocrat, O. c. Brigadier, O. c. Campania, O. c. Luciani, &c. Of the white

crispums O. c. Mount Everest is probably the finest white in cultivation, followed closely by O. c. Mrs. Mary Gratrix and O. c. Mont Blanc. Many of these fine varieties are duplicated two or three times, and Mr. Leemann holds the entire stock.

The second house contains seedlings, hybrids, natural and home-raised, and the best forms of ordinary Odontoglossums, if large flowers of excellent shape and substance can be called ordinary, as Mr. Leemann has a very high standard, and all doubtful plants are rigorously weeded out. These, by the by, with Cattleyas, Lælias, Cypripediums, &c., are all presented to a neighbouring town, and have already formed a good nucleus for a public collection.

The third house is filled with Cypripediums, the majority fine strong plants, for here they are not cut up for sale purposes, with the inevitable one growth and break, but are encouraged to grow and moved on into large pots as required. I noted C. × Germaine Opoix, C. × fulshawense, C. × Euryades vars. magnificum and splendens, C. × Minos, C. × Maudiæ var. Amy Leemann, C. × Thompsoni magnificum, C. × aureum in variety, &c., the lower division being filled with all the good varieties of C. insigne and hybrids derived from it. This division has a great many seedlings of the best blood, from one to four years old. I noted Sophrocattleya Doris and similar hybrids growing freely in this house.

Entering the fourth house we find it higher and wider, with central stages, this and the next four houses being devoted to Cattleyas, Læliocattleyas, &c. The collection is particularly rich in albino Cattleyas and hybrids, and all the plants are fine strong pieces and of that fine dark green colour so beloved of Orchid growers. Brief mention can only be made of a select few, but when all are good it makes discrimination difficult. Of Læliocattleyas I noted a fine batch of Fascinator, Arnoldiana, Canhamiana Rex, callistoglossa, Fred. Boyle var. Kerchoveæ (L. anceps alba × C. Trianæ alba), luminosa Saturn, this last very fine, and one from Lælia grandis × C. Schrœderæ, of rich bronze tint, also some good Cattleya × Mantinii nobilior. Then turning to the white Cattleyas we find C. Mossiæ Reineckeana var. Sheila, C. gigas Frau Melanie Beyrodt, C. Mossiæ nobilior, C. M. Victoria-Regina, C. M. Excelsior, and C. M. Reineckeana Hardy's variety. I noted one plant of this last variety flowering on the leading bulb and also on one three bulbs back. Of many of these plants Mr. Leemann has quite a nice stock, as, for instance, I counted over thirty plants of Cattleya Gaskelliana alba, fifty fine plants of Cattleya Adonis (Enid), &c. Brassocattleyas are represented by many fine varieties, B.-c. Maronæ, Leemanniæ, Mariæ, heatonensis, Veitchii var. Queen Alexandra, and Thorntoni being a few selected at random.

The last two houses are filled with unflowered seedlings of Cattleyas and

Leliocattleyas, and for the propagation of back bulbs of the finest varieties. One small house at the end of the corridor was filled with varieties of white Lælia anceps, looking remarkably healthy. On the north side of the corridor is a house filled with Cymbidiums, Odontoglossum grande, Oncidiums, &c., used for cutting purposes.

I must not forget to mention the remarkably fine series of paintings, which must amount to several hundreds in number, each of which is represented by one or more plants in the collection.

Mr. Leemann's Orchid grower, Mr. Sydney Smith, is very skilful at his work, modest and unassuming. and he takes a deep personal interest in the welfare of the valuable plants under his care. It must be a great source of gratification and pleasure to both master and man to see the results achieved, the one sparing neither money nor expense, the other devoting all his skill and care to their well-being. H. THORP.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of this Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on August 3rd, the day after Bank Holiday, when the exhibits were not numerous, but included a number of interesting things, and among them was the new Dendrobium Sanderæ, to which a First-class Certificate was awarded. Other awards were two medals, one Award of Merit, one Botanical Certificate, and one Cultural Commendation.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), staged a very interesting little group, including a good plant of Cycnoches chlorochilon with a spike of six flowers, Catasetum tabulare, a fine Bulbophyllum grandiflorum, the singular little B. lemniscatoides, Cirrhopetalum picturatum, Cryptophoranthus Dayanus, Masdevallia infracta, Odontioda Bradshawiæ, Cattleya Gaskelliana cœrulescens, Lælia × gattonensis (anceps × cinnabrosa), a good plant of Ancistrochilus Thomsonianus with seven spikes, and a good example of the citron yellow Sobralia × Colmanii (xantholeuca × Veitchii) in the centre. A Botanical Certificate was given to the rare Phaius pauciflorus, a very distinct species, characterised by having flowers borne in axillary pairs on the stem, and white in colour, with some purple stripes on the lip.

The Hon. Mrs. Foley, Packham, Fordingbridge, Hants (gr. Mr. Newman), exhibited an excellent specimen of Angræcum caudatum with four long spikes, each bearing from ten to twelve greenish buff flowers with very long twisted spurs. A Cultural Commendation was awarded.

W. Waters Butler, Esq., Southfield, Norfolk Road, Edgbaston, received an Award of Merit for Cattleya Warscewiczii var. W. Waters Butler, a

very large and richly-coloured form, having rose-purple sepals and petals, and a much darker lip, with two large deep yellow blotches in the throat.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), showed Læliocattleya Louisa Fowler (L.-c. callistoglossa × C. granulosa), a fine thing, most resembling the Cattleya parent in shape, and having bright rose-coloured sepals and petals with some darker veins, and a strongly three-lobed rose-purple lip with some yellow markings at the base.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent Cattleya × Wavriniana and Odontoglossum crispum Primrose, the latter a pale whitish yellow form.

F. J. Hanbury, Esq., Brockhurst, E. Grinstead, sent Cattleya × Maroni-aurea (Maroni × Dowiana aurea), having buff-yellow sepals and petals, and the lip veined with rose, a fine plant of C. × Euphrasia Brockhurst var., and two plants of Brassocattleya Joan (B. Perrinii × C. Warscewiczii), having white flowers, most like the Brassavola in shape, and with some purple spotting on the lip.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), showed several plants of Odontioda Thwaitesii, derived from Cochlioda vulcanica and Odontoglossum Harryanum, and now developed into a very beautiful hybrid. The sepals and petals are claret red, and the lip mottled with violet on a lighter ground. The best and darkest form was called var. superba.

Messrs. Sander & Sons, St. Albans, staged a very fine group, which received a Silver Flora Medal. It contained a fine specimen of Odontioda Devossiana, the rare Bletia catenulata, Phaius Zollingeri, having white flowers marked with sepia brown on the lip, examples of Dendrobium longicornu, D. bellatulum, and the handsome D. regium, two fine plants of Brassocattleya Pluto, Læliocattleya Antigone, Maxillaria venusta magnifica, a very fine dark form of Vanda cœrulea, Cypripedium × Martin Cahuzac superbum, an interesting hybrid between Lælia grandiflora and L. × xanthina, having cream white flowers with some purple lines on the lip, and others. A First-class Certificate was given to Dendrobium Sanderæ, the beautiful novelty whose portrait and history were given at page 209. The flowers are large, pure white, with some green at the base of the lip, and some rose-purple lines on the side lobes and base of the front lobe. It promises to be a very handsome companion to D. Dearei, to which it is most allied.

Messrs. Stuart Low & Co., received a Silver Banksian Medal for an interesting and pretty group, including a fine plant of Dendrobium sanguinolentum, D. macrostachyrum, the rose-purple D. glomeratum, Bulbophyllum Dearei and B. miniatum, the latter having slender scapes of purple flowers, with white feathery lips, Cirrhopetalum maculosum, Lycaste

aromatica, Oncidium Kramerianum, O. abortivum, Masdevallia calura and others, the handsome Bollea Lalindei, Epidendrum trachychilum, the pretty little Angræcum distichum, A. Scottianum, and other interesting things. A Botanical Certificate was given to Eria ornata, a large species, having an erect inflorescence of brownish woolly flowers, with some crimson markings on the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a choice little group, including a fine specimen of Chysis lævis, a well-bloomed Oncidium trulliferum, a good plant of O. uniflorum, Catasetum Bungerothii, Octomeria diaphana, and a pretty secondary hybrid of Cattleya Mendelii, having blush white flowers with a bright rosy-purple front lobe to the lip.

Messrs. J. and A. McBean, Cooksbridge, sent a group of well-grown plants of Odontoglossum crispum, the centre plant being a particularly fine form, having large, very round white flowers, with clusters of red-brown spots on the sepals.

M. Maurice Mertens, Ghent, sent a small group of hybrid Odontoglossums, including some good blotched forms.

At the meeting held on August 17th there was a fine display of Orchids, including a very beautiful group of Disa grandiflora, and the awards consisted of five medals, three First-class Certificates, four Awards of Merit, and a Cultural Commendation.

Mrs. Bischoffscheim, Warren House, Stanmore (gr. Mr. Taylor), staged a very beautiful group of Disa grandiflora, consisting of some 42 plants, the best about four feet high, and bearing seven flowers, while two others bore six, and several five each. The foliage was dark green and perfect, and the flowers varied greatly from orange-scarlet to bright scarlet, and the lips from white to light yellow, with the usual markings. Scarcely any two were alike in colour. The species is often found difficult to grow, but these were excellent, and gained the award of a Silver-gilt Flora Medal.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent a choice little group, which gained a Silver Banksian Medal. It contained the distinct Brassolælia Thwaitesii (L. grandiflora × B. Digbyana), a fine Cypripedium × Lairessei with two scapes, each bearing three fine flowers, C. × H. S. Goodson, Rodriguezia secunda, five plants of Miltonia Roezlii alba, Cattleya × Pittiana Herberti, C. × Atalanta illuminata, with three others, which gained special awards. A First-class Certificate was given to Odontoglossum × Goodsoni (Uroskinneri × Pescatorei Charlesworthii), a handsome thing, showing much of the Uroskinneri habit, and the flowers white, heavily blotched with dark red-purple, except near the margin of the nearly circular front lobe of the lip. An Award of Merit was given to Læliocattleya Black Prince (L.-c. bletchleyensis × C. × Hardyana), having

rose-purple, somewhat connivent sepals and petals, and a very rich ruby crimson lip of nearly uniform colour. A Cultural Commendation was given to a fine plant of Cattleya Gaskelliana alba Goodsonæ, bearing six spikes of bloom.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), sent Cattleya × Tacitus (bicolor × Germania), having dusky purple sepals and petals, and a rich purple lip, with very small side lobes, and Læliocattleya Jason (L.-c. Massangeana × C. Dowiana aurea), having greenish yellow sepals and petals, and a rich crimson lip with a trace of yellow veining at the base of the throat. The latter gained an Award of Merit.

G. F. Moore, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. Page), sent Cypripedium × Fair Maude (Fairrieanum × Maudiæ), most like the latter in shape and the former in colour, but with both characters modified in detail.

Messrs. Sander & Sons, St. Albans, staged a large and handsome group, to which a Silver-gilt Flora Medal was awarded. It contained a number of good Brassocattleya Pluto, Læliocattleya Fournieræ, La France, Doinii, and Pomeroyæ, with L.-c. Lady Crossley (L.-c. elegans × C. Harrisoniana), bearing neat lilac pink flowers, with some light purple stripes near the front of the slightly three-lobed lip, and a good series of the more familiar hand-some forms, Lælia × venustula (grandiflora × xanthina), having cream white sepals and petals, and a white three-lobed lip, tinged with lilac in front and striped with purple, half a dozen plants of the handsome Dendrobium regium, Odontoglossum × harvengtense cinnamomeum, a handsome form which opens yellow, changing to cream, and bears yellowish brown blotches, two distinct forms of Odontoglossum × MacNabianum, the handsome O. × Rolfeæ Sander's var., having large dark blotches and a very square lip, some good Cattleya Warscewiczii, the charming little Hemipilia amethystina (Rolfe), a Burmese plant with a pretty variegated leaf and a spike of purple flowers, Phaius flavus, Bulbophyllum barbigerum, Odontioda Bradshawiæ and Vuylstekeæ, Gongora galeata, Cirrhæa saccata, Rhynchostylis retusa, Cypripedium × Ultor, a few C. Godefroyæ leuchochilum, Vanda Parishii, V. tricolor, &c. Awards of Merit were given to Vanda cœrulea Dreadnought, a remarkably fine form, bearing a spike of ten large, dark blue and strongly tessellated flowers, and to Læliocattleya Invincible (Dominiana × bletchleyensis), a very fine hybrid, having bright purplish rose sepals and petals, and a deep ruby-claret lip.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Flora Medal for a choice group, containing some good Læliocattleya callistoglossa, and other brilliant Læliocattleyas, examples of Cattleya × Germania magnifica, × Venus, × Hardyana, × Vulcain, × lucida, a fine C. Gaskelliana alba, Masdevallia velifera, Mormodes luxatum punctatum, with

numerous minute dots on the segments, Odontoglossum bictoniense album, a fine O. × Rolfeæ, the rare Angræcum Rothschildianum and A. arcuatum, Miltonia × Hyeana, Trichopilia Turialvæ with eight flowers, the rare Capanemia uliginosa, good examples of Dendrochilum filiforme, &c. A First-class Certificate was given to Cirrhopetalum pulchrum Cliftoni, a very fine form, heavily blotched with dark rose-purple.

Messrs. Stuart Low & Co., Bush Hill Park, also received a Silver Flora Medal for a fine group, containing two plants of the handsome Oncidium Lanceanum, with O. Kramerianum, superbiens and raniferum, Anguloa Clowesii and Ruckeri, Angræcum Scottianum, the rare Promenæa microptera, whose history is given at page 264, a very beautiful Sophrolælia Gratrixiæ, with rich cinnabar orange sepals and petals, and a bright scarlet lip with a white throat, Cattleya velutina, × Pittiana, granulosa, Harrisoniana and several C. Gaskelliana, the latter including the variety aurantiaca, with a very deep orange throat to the lip, Cirrhopetalum guttulatum, Physosiphon Loddigesii, Masdevallia infracta, Gongora galeata, a good Dendrobium sanguinolentum, Odontoglossum × Rolfeæ, Læliocattleya stellata (L. xanthina × C. intermedia alba), a pretty light form, with some light purple at the sides of the lip near the apex, Cypripedium niveum, &c.

Messrs. J. W. Moore, Ltd., Rawdon, Leeds, received a First-class Certificate for Dendrobium acuminatum (Rolfe), a handsome Philippine species of the section Sarcopodium, bearing an erect inflorescence of fifteen deep rose-coloured flowers.

Mr. E. V. Low, Vale Bridge Nursery, Haywards Heath, sent a pretty little group, including a good Cattleya × Elvina, C. Harrisoniana alba, C. Gaskelliana, Sophrocattleya Chamberlainii, Cypripedium × Princess, C. × Juno, Læliocattleya Clive, and a fine example of the variety broomfieldiensis, with a very dark lip.

Mr. W. Bolton, Wilderspool, Warrington, sent a flower of Cattleya Warscewiczii Boltoni, of model shape, and having broad rosy-lilac sepals and petals, and a rose-purple lip, with a circular white area extending on each side beyond the light yellow blotches in the throat.

THE HYBRIDIST.

ODONTOGLOSSUM × GOODSONI.—This is a handsome hybrid from the collection of H. S. Goodson, Esq., Fairlawn, Putney, to which a First-class Certificate was awarded by the Royal Horticultural Society, on August 17th last. It was derived from O. Uroskinneri × O. Pescatorei Charlesworthii, and has much of the habit, the erect inflorescence, and long pedicels of the latter. A flower has been sent by Mr. Day, which shows well the influence of both parents. The segments are broad and short, giving a very full round shape. The sepals are mostly dark red-purple, with a few transverse

whitish lines, and the petals heavily blotched with red-purple on a white ground. The lip is pandurately three-lobed, with a very broad nearly circular front lobe, and the ground colour is white, blotched with red-purple, except at the margin, and there is a transverse band of similar colour in front of the crest. The latter is broad, concave, and extends in a pair of prominent truncate keels in front. The column is white, with purple spots behind, and very broad, denticulate, almost hatchet-shaped wings. It is a handsome acquisition.

THRIPS.

WHAT is the best remedy for the red thrip affecting Cypripediums? This has been introduced to Australia on plants imported from England, and in Brisbane it has almost destroyed some collections of Cypripediums. They grow them in a bush or shade house which cannot be fumigated. My experience is that with constant fumigation, and growing the plants in a cool airy place, with constant spraying overhead, I can reduce the thrips to a minimum, but I am not certain if I have exterminated them. They have not spread to any other plants.

I was in England a year ago, and when visiting Kew Gardens I was informed by one of the young gardeners attending to the Orchid houses, that they regularly used some weak insecticide when spraying the plants, which kept all scale and thrips down. If this is so could you give the name or formula of the insecticide used, and the proper strength?

The *Orchid Stud-Book* is very complete, and such a book was badly wanted. It is to be hoped that it will become the authority regularly used by all growers.

ARTHUR YATES.

Sidney, New South Wales.

By a singular coincidence the last issue of the *Kew Bulletin* contains an account of the the thrips found at Kew by Mr. Richard S. Bagnall, a summary of which will be generally interesting to Orchid growers. It occurs in a paper entitled "Additions to the Wild Fauna and Flora of the Royal Botanic Gardens, Kew." Under the heading Thysanoptera, Mr. Bagnall writes (p. 254):—

"Until recently only three species of thrips were recorded from European greenhouses, namely, Heliothrips hæmorrhoidalis, Bouché; H. femoralis, Reuter, and Parthenothrips dracænæ, Heeger. In 1904, however, Prof. Reuter described Leucothrips nigripennis, from hothouses, Helsingfors, Finland, found on species of Pteris; and in 1907 Mr. Dudley Moulton, described Euthrips orchidii, from four specimens found on Orchids in a hothouse, California, U.S.A. The writer has taken both Leucothrips nigripennis, Reuter, and Euthrips orchidii, Moulton, in the houses of the

Botanical Gardens, Brussels, and from greenhouses in the North of England, and this year described Euthrips longipennis and Cephalothrips spinosus from Brussels, and Anaphothrips orchidaceus from England, Ireland, Scotland, and Belgium. . . .

"We are only able to put on record five species of Thysanoptera from the conservatories and propagating pits of the Royal Botanic Gardens, Kew, four of which have been collected by the late Mr. George Nicholson. . . . It should be said that the houses are peculiarly free from these little pests. The writer on two occasions spent the whole day collecting in the propagating pits as well as the larger houses; on the first occasion a single specimen of Heliothrips hæmorrhoidalis, Bouché, was seen, and on the second, when special search was made for the species heretofore mentioned, only a few specimens of Anaphothrips orchidaceus, Bagnall, and Thrips tabaci, Lindeman, were captured. It is probable that the various ants which swarm in most of the houses help to keep down the thrips; the writer has found many species of hothouse thrips freely in several well-regulated and attended houses where ants are absent or scarce, but has always found thrips to be very scarce in houses infested by ants."

The two species recorded as occurring on Orchids at Kew are Anaphothrips orchidaceus, collected on *Zygopetalum*, Epidendrum, and Cymbidium, and Heliothrips femoralis on Lissochilus spp. The former is said to occur also on Cypripedium and Odontoglossum, and we suppose is the "yellow thrip" too familiar to Orchid growers.

The note places the maligned ant in a rather new light, for this insect has the reputation of carrying scale from plant to plant, and suffers much persecution in consequence. But perhaps Orchid growers prefer to keep thrips down by fumigation or spraying with some nicotine solution. The solution used at Kew is, we believe, the XL All liquid sold for the purpose, diluted to the strength recommended, but fumigation is also resorted to when necessary.

ORCHID COLLECTIONS ROUND MANCHESTER.

(*Concluded from page* 249.)

THE HAREFIELD HALL COLLECTION.—The collection of E. Ashworth, Esq., Harefield Hall, Wilmslow, is a large and representative one, which has occupied a prominent position in the Manchester district for many years, and contains many features of interest. We were particularly pleased to see several healthy plants of the rare Trevoria Chloris, with flowering examples of Dendrobium Victoria-Regina, and the charming little Epidendrum Endresii—but we will not anticipate the order of our notes.

On our way to the Orchid houses we passed through a corridor, where in a light and airy corner was a good plant of Cymbidium Lowianum

concolor, and a plant of C. grandiflorum was pointed out as flowering during the proper season, without any difficulty in getting the buds to open.

The first Orchid house contained a lot of Dendrobium Phalænopsis, growing freely, with a number of Lælia anceps and Brassavola Digbyana, all suspended from the roof. Then came a house of seedling Cypripediums, where we noted flowering examples of C. × tessellatum porphyreum, C. × Haynaldo-Chamberlainianum, C. × Fraseri, and a very attractive C. × Edithæ, with about a dozen C. callosum Sanderæ in bud, and a few capsules, also a lot of healthy seedlings. In a second small house C. × insigne Sanderianum was in bloom, with a good C. hirsutissimum, and C. × Arthurianum × Chamberlainianum. There were also some small seedlings, and a few C. callosum Sanderæ × bellatulum album about large enough to bloom. We also noticed some Cattleyas suspended from the roof, and seedlings of Cattleya Schrœderæ alba × amethystoglossa alba, whose flowering is awaited with interest.

Passing into a Warm house we noticed several plants of the handsome Zygopetalum Ballianum in bloom, showing a good deal of variation in colour, also good examples of Læliocattleya Cappei, and Cattleya × Harrisiæ, while plants of the rare Cattleya superba alba, C. Harrisoniana alba, and the white Lælia Jongheana Ashworthii were pointed out. An adjacent house contained flowering plants of Dendrobium × Nestor, D. × rhodopterygium and D. × rhodostoma, with the handsome D. × Arthur Ashworth, derived from D. pulchellum × Brymerianum, and quite intermediate in character. We also saw a very fine Cypripedium Rothschildianum, with a few others, in some cases bearing capsules, and a plant of Selenipedium × Hardyanum, with long petals, and most comparable with a pale S. × grande.

Then came three houses largely devoted to Odontoglossums, containing a profusion of bloom, but what immediately caught the eye was a batch of the beautiful Dendrobium Victoria-Regina suspended from the roof, with over a dozen plants in flower. Since adopting this position Mr. Ashworth finds no difficulty in growing it. The Odontoglossums contained some good O. crispum, Pescatorei, cirrhosum, triumphans, luteopurpureum, Hallii, cordatum, × Adrianæ, showing a remarkable amount of variation, × Andersonianum, × harvengtense, Edwardii, Uroskinneri, pulchellum, Reichenheimii, apterum, platychilum, × Wilckeanum, × mirificum, and others. O. Pescatorei Lindeni was pointed out as a very good form, with a few purple spots on the sepals and lip, and a dark blotch in front of the crest, while O. × Rolfeæ superbum was particularly fine. A good plant of the charming Odontioda heatonensis carried two spikes, the best having fifteen flowers. We noted also examples of Ada aurantiaca, Cochlioda rosea and vulcanica, the charming little Epidendrum Endresii, Lycaste

gigantea with nine flowers, L. Skinneri and L. S. alba, the pretty Oncidium chrysopyramis, Masdevallia caudata and xanthina, several forms of M. Chimæra, a profusely-flowered M. Arminii, M. × Pourbaixii with ten blooms, and a number of the scarlet-flowered group, these houses altogether containing a fine display of bloom.

The two houses devoted to the Cattleya group contain quite a representative collection, and among those noted in bloom were a lot of C. Mossiæ, showing the usual variation, C. Mendelii, Skinneri, Lawrenceana, Schilleriana, Lælia purpurata, Læliocattleya Cappei with a very fine spike, Epidendrum radicans, E. evectum, &c. Cattleya Mossiæ Arthur Ashworth is a beautiful variety of the Reineckeana type, having a slate-blue tint over the front of the lip. The rare Trevoria Chloris was represented by five healthy plants, not now in bloom. We noted also the remarkable Cirrhopetalum Collettii, Bulbophyllum barbigerum, Dendrobium pulchellum, a capsule of D. Cœlogyne, Oncidium phymatochilum, Selenipedium caudatum, Phaius × Norman, Spathoglottis × Colmanii, and some good Vanda teres, Cœlogyne speciosa was in bud, and we noted a capsule which has taken a long time to develop, the flower having been crossed with C. fuliginosa in November, 1907, and is still unripe. The reverse cross was also made.

A few other interesting things were noted in the remaining houses, including Phaius maculatus, Cœlogyne Massangeana, Oncidium maculatum, Odontoglossum citrosmum, Cypripedium × Godseffianum, several C. × Deedmanianum, and four plants of a cross from C. × Lathamianum × hirsutissimum, raised here many years ago, one of them bearing seven flowers, most comparable with those of a light-coloured C. × Germinyanum, but with more white on the dorsal sepal.

Mr. Ashworth is a very enthusiastic Orchidist, and takes the keenest personal interest in every department of his collection, which has been under the charge of Mr. Holbrook for many years, and is in a thriving condition generally. Some further notes may be found at pp. 181, 182, of our eighth volume.

DR. HODGKINSON'S COLLECTION.—Another old-established collection is that of Dr. Hodgkinson, The Grange, Wilmslow, which we have twice previously had the pleasure of seeing (*O.R.*, ii. pp. 195-197; viii. pp. 178-180). Several houses are devoted to Orchids and contain many well-grown plants, and a number of very interesting rarities.

The Odontoglossums were in a thriving condition, and many strong plants, with very large bulbs, were pointed out. They are grown in a compost of Osmunda fibre. We saw a lot of good O. crispum, including spikes of a dozen flowers, the handsome O. c. Lindeni, and O. c. Woorei, a

well-shaped and finely blotched form. There were also good examples of O. Hallii, × ardentissimum, × Andersonianum, × Fascinator, × Coradinei, pulchellum, &c., while O. × Thompsonianum was producing a fine spike, and we noted a good form of O. × Wattianum princeps. There were also examples of Cochlioda sanguinea, Colax jugosus, Lælia pumila præstans, and a good example of Dendrobium Victoria-Regina, in this case not suspended, though in a light position, near the glass. Oncidium macranthum was also producing very fine bulbs in the same compost.

In an Intermediate house we saw the richly-coloured *Zygopetalum* × Perrenoudi in bloom, with Dendrobium infundibulum, a good Læliocattleya Schilleriana, the pretty Cymbidium tigrinum with three racemes, Epidendrum vitellinum, Odontoglossum Uroskinneri, a good example of Ornithidium Sophronitis, Chondrorhyncha Chestertoni in bud, a number of seedling Cypripediums, and other interesting things.

The next house contained numerous choice Cypripediums, and among those in bloom we noted fine examples of C. Mastersianum, Rothschildianum, and Argus, with a very fine C. × nitens, and a number of good C. bellatulum from a batch imported many years ago. These included C. b. album and the pretty light-coloured variety Princess Clementine. A plant of the rare Dendrobium Hodgkinsoni was pointed out, with some good D. Phalænopsis and other Dendrobiums, while D. cretaceum and a few good Vanda teres were in bloom. It was remarked that some plants of C. bellatulum have been in the collection for 21 years.

In another house we found a number of C. Godefroyæ leucochilum in bloom and bud, and Dr. Hodgkinson remarked that a plant of C. niveum was found in one of the imported clumps, thus affording interesting evidence that the two grow together. Some young seedlings were also pointed out germinating on the leaves of imported plants, and some have been taken off and potted. The fine C. Godefroyæ xanthochilum, with a clear yellow lip, appeared in the same importation. These plants are grown in loam, and are placed in a warm sunny position. With them were some forms of C. niveum. There were also plants of the charming C. × Aylingii, and C. × Vipani, with C. Lawrenceanum Hyeanum, some seedlings of C. bellatulum, and a nice plant of C. niveum × Lawrenceanum Hyeanum. A plant of the rare Dendrobium Lowii was also noted.

The Cattleya house contains a good series of the popular kinds, with a number of hybrid seedlings, and a good plant of C. labiata Peetersii was pointed out, with six or eight plants of the rare C. Rex, from an early importation, and these are said to flower well at the proper season. There were also some good forms of Lælia purpurata, Læliocattleya Schilleriana, the pretty little L.-c. Doris, a good Brassocattleya Veitchii, and a fine spike of the rare Schomburgkia tibicinis var. grandiflora. The plants are grown

in Osmunda fibre, which is found to give excellent results. Leaf mould has been tried as a compost, but has now been given up. A large plant of Vanda cœrulea stood at the end of this house, where it grows and flowers well.

A number of Phalænopsis are grown, some of them having been obtained from the Philippines many years ago, and we noted some good plants of P. Schilleriana, several P. Lueddemanniana in bloom, and a plant of P. × intermedia Portei throwing up a spike. There were also plants of P. amabilis Rimestadiana, some being in bloom, and one of the very rare P. Lowii. We also saw plants of Bollea cœlestis, and the rare Aganisia ionoptera, while A. lepida was in bud. These occupy a rather shady position in the house. We also saw a plant of the rare Catasetum Bungerothii Pottsii, and one of Arachnanthe Cathcartii which was growing well.

The collection is a particularly interesting one, containing a good many rareties in addition to the usual popular species, and some of the plants have been successfully grown here for many years, a fact which speaks well for the skill of Mr. Woore, Dr. Hodgkinson's excellent gardener, under whose care it has been for a long period. There are also a number of hybrid seedlings, for a few hybridisation experiments have been carried on from time to time, partly in the hope of raising novelties, and partly for the interest felt in watching the development of the seedlings. In fact, Dr. Hodgkinson finds in Orchid growing a delightful hobby, and the possession of such a collection affords a perpetual source of interest.

ORCHIDS IN SEASON.

A FLOWER of the handsome Cattleya Warscewiczii var. W. Waters Butler, which received an Award of Merit from the Royal Horticultural Society on August 3rd, is sent from the collection of W. Waters Butler, Esq., of Edgbaston. It is of excellent shape, and has bright rose-purple sepals and petals, and a much darker lip, with a pair of large yellow blotches in the throat.

A flower of a fine dark form of Odontoglossum Harryanum is sent from the collection of D. L. Thorpe, Esq., Etterby Scaur, Carlisle. It has the usual markings on the petals and lip, but is much darker in colour than the typical form.

A flower of Cattleya × Louis Blériot is sent from the collection of the Right Hon. J. Chamberlain, M.P., Highbury, Birmingham, by Mr. Mackay, who remarks that it is a hybrid from C. × Chamberlainiana × Hardyana. It has light rose-purple sepals and petals, and a broad, open, very dark crimson-purple lip, which is entire, and has a prettily undulate margin, and some yellow and paler veining in the throat. It appears to be the first hybrid

from C. × Chamberlainiana, and an analysis of parentage would give half C. Dowiana, and a quarter each C. Leopoldi and C. Warscewiczii.

A three-flowered inflorescence of a pretty little hybrid is sent from the collection of Mrs. T. Fielden, Grimston Park, Tadcaster, by Mr. G. P. Bound, who remarks that it was derived from Cattleya Harrisoniana × C. granulosa, and is the first hybrid raised at Grimston. It is a form of C. × Gratrixiæ (*Orchid Stud-Book*, p. 58), and has rosy lilac sepals and petals, and a strongly-three lobed lip, with acute side lobes, rosy lilac outside and pale yellow inside, and the broadly-stalked front lobe is veined and reticulated with crimson purple. It shows unmistakable evidence of its parentage.

A fine flower of Cattleya Grossii is sent from the collection of Richard Ashworth, Esq., Newchurch, Manchester, by Mr. Fletcher. It is a near ally of C. bicolor, but has a much broader front lobe to the lip. The sepals and petals are purple-brown, and the lip light rose-purple, with a broad white band on the disc. It was figured at page 305 of our tenth volume.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during September, on the 14th and 28th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. On the latter date, at 3 p.m., the second Masters Memorial Lecture will be delivered by Prof. Hugo de Vries, the subject being "The Production of Horticultural Varieties," and will be illustrated by lantern slides. Chairman, Prof. Bateson, F.R.S., V.M.H.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on September 9th and 23rd. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m.

An International Exhibition of Horticultural and allied subjects will be held at Ghent from October 30th to November 1st, 1909, under the auspices of the Société Royale d'Agriculture et de Botanique de Gand, in which thirteen classes are set apart for Orchids. Prizes are offered for groups of 50, 25 and 20 Orchids, also for groups of Odontoglossums, Cattleyas and Lælias, and Cypripediums, also for single specimens of the same.

CATTLEYA MENDELII HIS MAJESTY.—The *Gardeners' Magazine* states that the owner of this superb variety (which it previously illustrated), Mr. Francis Wellesley, J.P., Westfield, Woking, has succeeded in dividing it, and that Her Majesty the Queen has been graciously pleased to accept from him

the new portion. This has been sent to Frogmore, and is now under Mr. Mackellar's care.

Under the title, "A Famous Orchid Hybridist," we also find a portrait of Mr. J. Charlesworth, of Haywards Heath, the head of a firm that has figured largely in Orchid raising and cultivation during the last twenty years.

A fine group of nine specimens of Cœlogyne cristata from the collection of Earl Cawdor, Llandilo, is figured in a recent issue of the *Gardeners' Chronicle* (p. 75, fig. 31). The plants are in six-inch pots, and have not been repotted for three years. They are literally covered with flowers.

ORCHID PORTRAITS.

BULBOPHYLLUM DEAREI.—*Journ. Hort.*, 1909, ii. p. 147, with fig.

CŒLOGYNE CRISTATA (group).—*Gard. Chron.*, 1909, ii. p. 75, fig. 31.

CYCNOCHES DENSIFLORUM, Rolfe.—*Bot. Mag.*, t. 8268.

CYPRIPEDIUM × THE PREMIER.—*Gard. Mag.*, 1909, p. 663, with fig.

DENDROBIUM ACUMINATUM, Rolfe.—*Gard. Chron.*, 1909, ii. p. 150, fig. 64; *Gard. Mag.*, 1909, pp. 659, 660, with fig.

DENDROBIUM SANDERÆ, Rolfe.—*Gard. Mag.*, 1909, pp. 621, 622, with fig.

DISA GRANDIFLORA (group).—*Gard. Chron.*, 1909, ii. p. 154, fig. 65.

LÆLIOCATTLEYA × CHOLETIANA.—*Journ. Hort.*, 1909, ii. p. 195, with fig.

LÆLIOCATTLYA × STATTERIANA.—*Journ. Hort.*, 1909, ii. p. 123, with fig.

SOPHROLÆLIA HEATONENSIS.—*Journ. Hort.*, 1909, ii. p. 171, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

S. Y.—1. Epidendrum dichromum, Lindl. 2. The Phalænopsis leaves appear to be affected with the well-known "spot," which sometimes troubles our own growers during the winter. A chill, with moisture on the foliage, is believed to be the cause, the fungus afterwards appearing on the dead tissues. Prevention seems to be the only remedy. 3. See page 281.

E. B.—Phaius amboinensis, Blume.

H. B.—Two forms of Cattleya Leopoldi, which is somewhat variable in colour. The other is a natural hybrid which we will report upon.

H. G. A.—Cirrhæa viridipurpurea, Lindl.

L. L.—Unavoidably held over till next month.

H. F. W.—Catasetum fimbriatum, Lindl.

H. H.—Stanhopea oculata, Lindl., and Oncidium excavatum, Lindl.

W. H. W.—The note is unavoidably held over till next month, with some others.

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THE ORCHID REVIEW:

An Illustrated Journal of Orchidology.

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THE ORCHID REVIEW.

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THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 252.)

SOBRALIA is placed both by Lindley and Bentham in the subtribe Vanilleæ, which we last considered, but Pfitzer places it, together with Elleanthus and a few others, in a distinct group, Sobraliinæ, the last-mentioned genus being placed by Bentham near to Calanthe in the tribe Epidendreæ, where it is not very well placed. Sobralia is a genus of tall, reed-like, Tropical American Orchids, having stiff plicate leaves, and usually large Cattleya-like flowers, of rather membranous texture, which seldom remain fresh beyond a few days. They are found from Mexico to Peru, and usually inhabit sunny, rocky places, sometimes forming extensive thickets. The lip is convolute round the elongated column, and the pollinia are less powdery than in the Vanilleæ. The exact affinity of the group is not yet clear.

The small subtribe Corymbieæ has some resemblance in habit to the preceding, while the floral structure resembles the Spirantheæ. The species are mostly Indo-Malayan, with a few African and American representatives, but they are very rarely seen in cultivation. Bentham places the group between Vanilleæ and Spirantheæ, though that may not be their true position.

We now come to the great subtribe Spirantheæ, the Neottieæ proper of Lindley, of which Bentham recognises about thirty-five genera, and defines as follows : "These are all terrestrial, with creeping or short rhizomes, not forming, so far as known, any underground tubers. The flowering stems are erect, simple, with membranous leaves, or very rarely leafless, and a simple terminal raceme, sometimes condensed into a spike. The rostellum is terminal and erect or inclined forward, the anther behind the rostellum and parallel to it, and the pollen masses after dehiscence either suspended from or attached to the gland of the rostellum, or affixed to the end of a stipes descending from that gl d." The flowers are usually somewhat pubescent, and the sepals and pe ls cohere into a hood over the column, while the lip is very various in shape, and usually more or less saccate or sometimes spurred at the base. The group is found throughout the warmer parts of the globe, with a few representatives in temperate regions. The

best known cultivated species are comprised under Anœctochilus and a few allied genera—grown chiefly for their handsomely variegated leaves—and a few species of Spiranthes and Stenorrhynchus, but a few others are occasionally seen. Among British and hardy representatives may be mentioned Listera, Spiranthes, Goodyera, and Neottia, the latter containing the remarkable saprophytic Neottia Nidus-avis, or Bird's-nest Orchid. The pollen masses are generally sectile, the compound granules being regularly packed in rows round a central axis, to which they are attached, forming a true caudicle, the latter being further united to the gland of the rostellum.

Very little is known of the fertilisation of the tropical members of the group, but that of some of the temperate representatives has been studied, and in the case of Spiranthes and Listera has been recorded in detail. Darwin watched a number of Spiranthes autumnalis at Torquay for about half an hour, and saw three humble bees of two kinds visit them. He caught one and found two perfect pollinia on its proboscis, and the discs of three others, showing that the bee had removed the pollinia from five flowers, and had probably left the pollen of three on the stigmas of other flowers. Next day he found another at work. The bees always alighted on the bottom of the spike, and crawling spirally up it, sucked one flower after the other, something like a woodpecker in search of insects. As soon as the flower opens nectar is found in the sac, and there is only a very narrow opening between the lip and the column, through which a fine bristle or the proboscis of an insect can be passed, and on being withdrawn brings away the pollinia. In a day or two the column moves away from the lip, leaving a wider passage to the stigma. Everything is beautifully arranged for the purpose in view. The bee, on visiting a spike for the first time, would bring away the pollen from the youngest and last-opened flower, and then fly away to another spike, alighting on the lowest and oldest flower, into which a wide passage has now been formed by the reflection of the column, thus allowing the pollinia to come into contact with the stigma. If the stigma were in an adhesive condition it would capture the pollen attached to the insect, but if already covered with pollen this would not happen until the bee reached a flower in the right condition. Finally, on reaching the upper flower it would withdraw fresh pollinia before flying to the next spike. Thus, as Darwin remarks, the bee "as she goes her rounds, and adds to her store of honey, continually fertilises fresh flowers, and propagates the race of our autumnal Spiranthes, which will yield honey to further generations of bees." The rostellum is endowed with a peculiar kind of irritability, for it is slightly furrowed in a longitudinal line, and if this furrow be touched with a small bristle it splits longitudinally, and a little milky fluid exudes, which serves to attach the pollinia to the insect.

Darwin shows that the splitting does not take place spontaneously, and can be prevented by excluding insects with a net.

The Australian Spiranthes australis is markedly different in its economy, for Mr. Fitzgerald could never detect any trace of a rostellum or of viscid matter, and the flowers are as completely self-fertilising as those of Ophrys apifera, even if the visits of insects are prohibited by a bell-glass. The pollinia are said to touch the upper edge of the stigma and fertilise it at an early stage. The flowers are white, and are arranged on the spike in the same spiral manner as in S. autumnalis.

The Tway-blade, Listera ovata, is a common British Orchid which Darwin considers to be one of the most remarkable in the whole Order. It has small green flowers, with a long and narrow pendulous lip. The rostellum is of large size, thin or foliaceous, and arches over the stigmatic surface. Internally it is divided by longitudinal septa into a series of loculi, which contain viscid matter and have the power of violently expelling it. As soon as the flower opens, if the crest of the rostellum be touched, ever so lightly, a large drop of viscid fluid is instantly expelled, which is milky at first, but on exposure to the air sets hard in two or three seconds, and assumes a purple brown tint. So exquisitely sensitive is the rostellum that a touch from the thinnest human hair suffices to cause the explosion. As the pointed tips of the pollinia lie on the crest of the rostellum they are always caught by the exploded drop. The fertilisation of the flower is thus described by Darwin: "Small insects alight on the labellum for the sake of the nectar copiously secreted by it; as they lick this they slowly crawl up its narrowed surface until their heads stand directly beneath the overarching crest of the rostellum; when they raise their heads they touch the crest; this then explodes, and the pollinia are instantly and firmly cemented to their heads. As soon as the insect flies away it withdraws the pollinia, carries them to another flower, and there leaves masses of the friable pollen on the adhesive stigma."

On watching a group of the plants Darwin saw numerous small Hymenopterous insects of two species flying about the plants and licking up the nectar. The flowers whose pollen had been removed were visited over and over again, but at last he saw both species crawl into younger flowers and suddenly retreat with a pair of bright yellow pollinia sticking to their foreheads. Darwin's son watched another bed some miles away, and brought home the same two insects with attached pollinia, and also saw some Diptera visiting the flowers. He was also struck with the number of spiders' webs spread over these plants, as if the spiders were aware how attractive the Listera was to insects. In one case Darwin found an extremely minute Hymenopterous insect vainly struggling to escape, with its head cemented by the hardened viscid matter to the crest of the

rostellum and the tips of the pollinia. "The insect was not so large as one of the pollinia, and after causing the explosion had not strength enough to remove them; it was thus punished for attempting a work beyond its strength, and perished miserably." R. A. R.

(To be continued.)

THE AMATEUR'S COLLECTION.

AN AMATEUR'S PAGE.—"It has several times been suggested that an Amateur's page would be an acceptable feature of the *Review*, this being specially devoted to those who have only a small house, and attend to their plants for the most part themselves. If some amateur of this kind who has gained sufficient experience could be induced to conduct such a page its success would probably be assured. But the most experienced were beginners once, and although the writer long ago passed the initiatory stage, he will endeavour to keep in view those early days, in writing the following notes for beginners in Orchid culture."

With these promising words commenced some time ago what I hoped would develop into a regular monthly page for amateurs, but it was soon discontinued. Perhaps the writer became absorbed in the stream of new discoveries and forgot all about his early days. Orchidology seems such a progressive subject. Almost every issue of the *Review* tells us of the appearance of some interesting novelty or rarity, or the flowering of some striking hybrid, and perhaps we may occasionally see them at one of the horticultural meetings, but they are usually inaccessible, and we have to be content with more everyday Orchids. It is very interesting to know what the last new Odontioda is like, or to read about the latest discovery in Mendelism, but we like to think that our own little collections are not forgotten. There is something about them which is not quite provided for in the monthly Calendar of Operations, useful as it is as a cultural guide, and I think we ought to have an Amateur's page as a regular feature. At all events here are a few ideas to begin with.

ORCHID GROWING AS A HOBBY.—A well-arranged Orchid house is a source of perpetual pleasure. Throughout the year, from January to December, the interest never flags. There is always something going on, something growing or flowering, and one might almost fancy that the seasons were abolished inside. There is something unique about the very appearance of the plants, their varied habit of growth, the peculiar shapes of the pseudobulbs, the curious aërial roots which many of them possess, the way some are suspended from the roof, the infinite variety in the inflorescence and the shape and colour of the flowers, the curious resemblance to all kinds of animate and inanimate things, and especially to certain insects, invest them with a fascination which is exercised by few

other plants. Then their convenient size and accommodating character must be taken into account, as well as their moderate requirements in the way of potting and watering. And they are really very little trouble when once their requirements are properly understood and provided for. A suitable amount of light and warmth, with proper attention to the ventilation and to providing the necessary amount of humidity in the atmosphere, are among their chief requirements.

The Orchid House.—Orchids are very various in their requirements, and it is no use attempting to grow them all in a single house, for either the warmer or cooler-growing kinds must suffer, and ultimately disappear. A single house should, if possible, be divided by a glass partition, so as to provide a warmer and a cooler half, which would increase the number of kinds that can be successfully grown, and if a third house or division can be provided, and the temperatures maintained as Warm, Cool and Intermediate, a quite representative collection can be grown successfully. An interesting article by Mr. T. Anstiss, on "How to Construct an Orchid House," has just appeared in the *Journal of Horticulture*, which may be reproduced :—

"Where new houses are required, or alterations are necessary, the present time is usually chosen for carrying out such work, and where they are intended for Orchid culture a few details may be useful, because however efficient the horticultural builder may be, it is almost impossible for him to be so well acquainted with the needs of the plants as the man in charge is.

"The Site.—We are often victims of circumstances, and cannot select an ideal spot ; but when possible the house or houses ought to be built in an open space, away from dwelling houses and the shade of trees; while about 18 ft. should be allowed between each structure if it is decided to build a range. An Orchid house is best running from north to south, and of the span-roof type. The lean-to, once so popular for cool Orchids, is now rejected by practical growers. For Cypripediums, Odontoglossums, and seedlings, a low house is recommended, say about 9ft. high in the centre, and 11 ft. wide, with the front lights 18 in. in depth. These can either be fixed or be made to open ; I prefer the latter; then if at any time one desires to substitute another class of plant no difficulty would be experienced in admitting air.

"Ventilators must be ample, both top and bottom, and the first-named are arranged in every third light to open from the inside, while the lower ones are made of wood, let into the brick wall in such a way that the current of air passes over the hot-water pipes before coming in contact with the inmates. They are placed on both sides of the house, and to prevent cats or vermin entering during the night, a piece of fine gauze may be nailed to the frame of the bottom ventilators.

"BLINDS will be needed, which are either made of wood laths or canvas, but they should be raised from 6 in. to 9 in. above the roof by means of an occasional parallel rafter, to ensure a circulation of air over the glass. If specimen Lælias and Cattleyas are wanted then a larger house will be required, with a central stage, but the method adopted is exactly identical with the smaller structures.

"THE INTERIOR.—Inside the house a rain-water tank should be dug, capable of holding sufficient for three or four months' supply. For damping purposes tap or pump water can be used, thus saving the rain water for the Orchids. The stages should be 4 ft. wide, running both sides of the house, and formed of slate or other durable material, resting on iron supports, and covered with a layer of finely-broken coke or shell shingle to a depth of 2 in. Above this another stage is usually placed, made of unpainted battens, so as to raise the plants near the glass, and facilitate damping down; while they retain moisture for a longer period than when painted. In some collections, however, this second stage is dispensed with, and inverted flower pots are used instead.

"Regarding artificial heat, more piping should be allowed than is really necessary for a normal winter. It is far better to exceed the orthodox quantity, as it prevents that smell of fire heat so detrimental to plant life and the hard driving of the fires during frosty weather. Four inch pipes leading from the main are generally chosen, and six would be ample.

"Brick or tiled floors must be ignored, and what is known as coke "breeze" flooring substituted, which can be forked over at intervals, and renewed whenever needed at a small cost. Such a pathway, when sprinkled over, ensures that sweet, moist atmosphere in which all Orchids thrive. In some instances, wood lattices are laid over the floors, but they are apt to become slippery, and therefore dangerous; while the cost of renewing them is no small matter. Underneath the stages the bare earth is advised, wherein may be planted Begonias, Pilea muscosa, ferns, and a host of other subjects which will occur to the thoughtful cultivator."

With houses of the kind described, and the necessary range of temperature, Orchid growing may be attempted with confidence. The three divisions mentioned may not always be represented, but for the purpose of these notes we will assume their existence.

The Intermediate house is now gay with Cattleyas, Miltonias, Oncidiums, and a few others. The Cattleyas include C. Warscewiczii, C. Dowiana, and several of the slender-bulbed group, as C. Harrisoniana, velutina, Leopoldi, Forbesii, bicolor, and several hybrids, while Læliocattleya elegans and a number of artificial hybrids are flowering freely, also the pretty little Lælia pumila and L. Dayana. Oncidiums include O. incurvum, oblongatum, prætextum, varicosum and several species of the crispum group, while

Miltonia candida, M. spectabilis Moreliana, and two or three natural hybrids are in bloom. Vanda Kimballiana and cœrulea are throwing up good spikes, and the pretty little Paphiopedilum Fairrieanum is sending up a number of scapes. Odontoglossum grande is now throwing up some good spikes, and will soon make a fine show, and Maxillaria grandiflora is blooming freely. In this house the chief thing that requires attention now, will be to mature the growths in preparation for the coming winter.

In the Cool house not very much is now in bloom, except a few Masdevallias and Odontoglossums, though among the latter are the handsome O. Uroskinneri, Wallisii, Pescatorei, Krameri, with odd plants of O. crispum, and a few others out of season. O. crispum seems to bloom at any season, and a few spikes of this and others are pushing up. The plants are now growing freely, and care should be taken not to let the temperature fall low enough on cold nights to give them a check, also to see that they do not suffer from want of moisture. They will want all the light possible during the coming dull season. The pretty little Stenoglottis longifolia is beginning to bloom, and *Zygopetalum maxillare*, growing on tree fern stems, is throwing up spikes.

In the Warm house the handsome Vanda suavis is in bloom, with Listrostachys Chailluana, Phalænopsis Esmeralda, Ancistrochilus Thomsonianus, a few Angræcums, and other things, while the beautiful Dendrobium Phalænopsis is producing a number of spikes, and some are already in bloom. In foggy localities the blooms often suffer, as it is one of the most susceptible to fog, on which account it should be encouraged to grow and bloom as early as possible. The summer-flowering Cypripedes are not yet over, and a number of hybrids are in bloom in this house. This is the time when the American species of the Phragmopedilum set produce their new spikes, and the hybrids Sedeni, cardinale and others are now very effective, and will continue to bloom freely for months. They have an unfortunate habit of dropping their flowers before they fade, but it seems to make little difference to the display, and they are among the easiest of Orchids to grow.

STANHOPEA GRAVEOLENS.

SINCE pointing out the confusion between Stanhopea inodora and S. graveolens (*Orch. Rev.*, i. p. 258) I have come across some additional information respecting the latter, and the receipt of a flower from Messrs. Stuart Low & Co. affords an opportunity of putting it on record. Its history was previously given. Mr. Day has twice drawn the species, first in August, 1864 (*Orch. Draw.*, iii. t. 58), from a plant which he obtained from Messrs. Rollisson, as S. Wardii, but afterwards corrected the name, and again in August, 1886 (*l.c.*, li. t. 41). On this occasion he wrote: "Being anxious

to get my drawings of this genus quite authentic, I sent flowers to Professor Reichenbach, and got the name as above, as I expected. It is powerfully scented and not very pleasant, chiefly from the strength of it." To the former drawing Mr. Day has added: "Plants imported from Guatemala by Low & Co. bloomed with me in 1866, and are evidently the same as this, but much finer and larger. They had magnificent spikes of from nine to thirteen flowers." The flower sent by Messrs. Stuart Low & Co. is quite identical in shape and colour. The sepals and petals are light yellow, with many minute dusky dots and a deep yellow base, and the hypochil of the lip is oblong, orange-yellow, with a few reddish dots, chiefly inside, while the horns and epichil are straw-coloured, with many minute brown dots. The column wings are broad, and extend to within one-fifth of the base.

The plant figured by Lemaire under the name of S. graveolens (*Fl. d. Ser.*, tt. 69, 70) has a larger sac beneath the hypochil, and is probably different, also the variety Lietzei, Regel (Gartenfl., xl., p. 201, t. 1345).

R. A. R.

CATTLEYA × WILSONIANA.

A VERY interesting natural hybrid Cattleya is sent from the collection of P. C. P. Lupton, Esq., Southminster, Essex, by Mr. Bennett, who remarks that the plant has elongated pseudobulbs, about 18 inches long, with two leaves, and the spike is five-flowered. The plant was brought from Brazil by Mr. Lupton. The flower bears the most unmistakable resemblance to C. Harrisoniana, having light purple sepals and petals of very similar shape and texture, as also are the front lobe of the lip and the corrugated light yellow disc, but the side lobes are only two-thirds as long as the column, as in the hybrids of C. bicolor, which was probably the other parent. I have seen nothing quite like it before, and the question arises whether it is C. × Wilsoniana, a species only known from description, but which I have suggested as possibly of the same origin as C. × sororia, Rchb. f. C. × Wilsoniana came home with C. bicolor, and the flowers were said to be equal to a well-developed form of that species, but the sepals and petals of a beautiful deep purple. C. × sororia was described by Reichenbach as having the growth of C. bicolor and the flower like a good C. Harrisoniæ, yet he suggested C. Walkeriana and C. guttata as possible parents. It is figured in the *Orchid Album* (vii. t. 307), where it is said to have come home with other Cattleyas of similar growth, as C. bicolor, C. velutina, &c. Whether all three are of identical parentage must remain uncertain, but Mr. Lupton's plant is nearer to C. Harrisoniana than the one figured. It is unfortunate that the matter cannot be cleared up for want of material, but anyone who happens to have the two species in bloom might make the cross in the hope of settling the matter.

R. A. R.

CALANTHE × DOMINYI.

This striking plant, the first hybrid Orchid raised by hand, is again flowering freely at Kew, the plant carrying eleven spikes, thus being rather stronger than last year, when the annexed photograph was taken by

Fig. 22. Calanthe × Dominyi.

Mr. F. W. Rolfe. Its history was given in our first volume (pp. 3, 4). It was raised by Mr. John Dominy—the pioneer of Orchid hybridisation—in the establishment of Messrs. James Veitch & Sons, from Calanthe Masuca, a purple-flowered Indian species, and C. furcata, a white-flowered Philippine

plant which is believed not to be in cultivation at the present time. The seed was obtained in 1854, and in October, 1856, a seedling was in flower, when little over two years old. It was named by Dr. Lindley in honour of its raiser. The flowers are lilac-purple, with a rather darker lip, which changes to buff as the flowers get old. It is an easily grown and free-flowering plant. Besides being historically interesting, it is so easily grown and floriferous, that it deserves a place wherever hybrid Orchids are grown. It is one of the few hybrid Orchids which have been figured in the *Botanical Magazine* (t. 5042), and its portrait is very appropriately given as the frontis-piece of the *Orchid Stud-Book*, where its history is given in detail.

ORCHIDS OF SAO PAULO, BRAZIL.

WE recently referred to flowers of Cattleya Warneri and Læliocattleya Schilleriana sent from the collection of P. C. P. Lupton, Esq., of Southminster, Essex (p. 252). The plants in question had been sent from the State of Sao Paulo, Brazil, by a friend, Dr. F. S. Lane, and now Mr. Lupton sends the following very interesting information from him. Dr. Lane writes :—

"The L.-c. Schilleriana came from Praia Grande, near Santos, and is, as Mr. Rolfe says, a hybrid between Lælia purpurata and Cattleya intermedia. It was found about one mile from the seashore, in the low swamp land that generally has about six inches to a foot of water on it in the wet season. The plant was about ten feet from the ground. The C. Warneri comes from the State of Espirito Santo. There is a very similar one, C. labiata autumnalis, that comes from Pernambuco (Northern Brazil). I have also some exceptionally fine labiata from Ceara, but they are rare and hard to get. Occasionally I get species from the Rio Negro and Upper Amazon districts, but as I have no hothouse they do not do so well here.

"There is a great variety of Orchids here in this State of which I can give accurate information, but for those outside it I have to rely on the information of collectors, and that is not always reliable.

"This State has Lælia purpurata, cinnabarina, flava, crispa, crispilabia, and the tiny L. Regnellii, which is the smallest of the Lælias, and to-day quite rare. It is a perfect miniature of L. crispa. Of Cattleya there are C. Harrisoniana, Loddigesii, Forbesii, guttata, intermedia, Walkeriana, bicolor, velutina, and several natural hybrids, also Læliocattleya Binoti. Of Oncidium there are O. crispum (two varieties), Marshallianum, Forbesii, prætextum, aureum, sarcodes, pulvinatum, pumilum, pubes, micropogon, longipes, cornigerum, concolor, Brunleesianum, barbatum, unicorne, varicosum (two varieties), and a number of interesting types, many of which I believe are unclassified. Between O. sarcodes and O.

pubes, especially, there are a number of interesting types that I can find no classification for. There are also Miltonia Regnellii (three varieties), candida, Clowesii, cuneata, spectabilis (three or four varieties), and several natural hybrids, with a number of Maxillarias and Epidendrums, mostly of no value, several Catasetums, Stanhopeas, two Gongoras, five different kinds of Sophronitis, and a number of small Orchids that are beautiful but of no commercial value."

Mr. Lupton now sends two beautiful flowers of Cattleya Harrisoniana alba, which are pure white except for the usual yellow disc to the lip. The plant was sent to him by Dr. Lane, who remarks that it is part of a plant that came from the Rio Parahyba, near Taubate, in the north of the State of Sao Paulo.

ONCIDIUM SARCODES.

AN important question is raised by Dr. Lane in his interesting article on the Orchids of Sao Paulo (p. 298). He remarks: "Between Oncidium sarcodes and O. pubes, especially, there are a number of interesting types that I can find no classification for." I have long had a suspicion that the rare Oncidium amictum, Lindl., was a natural hybrid with some such origin, but the evidence was not conclusive, and as it was difficult to ascertain which particular species grew intermixed a paper on Hybrid Oncidiums (*O.R.*, i. pp. 298-302) was left unfinished.

The history of O. sarcodes is very imperfect. It was described by Lindley in 1849 (*Journ. Hort. Soc.*, iv. p. 266) as a Brazilian species received in April, 1849, from Mr. P. N. Don, and it was remarked that the habit was entirely that of O. pubes and O. amictum. Over forty years later Messrs. Veitch wrote: "Although one of the most admired of Oncids, and one that is generally cultivated, the records of the botanical and horticultural history of Oncidium sarcodes are of the slenderest description. . . . Its precise habitat does not appear to have been divulged. The importations are received from Rio de Janeiro, and the plants are said to be collected in the neighbourhood of Novo Friburgo, on the Organ Mountains (*Veitch Man. Orch.*, viii. p. 76).

A year after the publication of Messrs. Veitch's note the species was figured in the *Orchid Album* (x. t. 477), and a new locality was recorded. It was remarked: "Some few years ago we received a consignment from a gentleman who had been collecting plants in the province of Sao Paulo, and the cases yielded plants of Oncidium varicosum, prætextum, Cattleya Loddigesii, and some plants which appeared to be Oncidium sarcodes. As the small-flowered and worthless O. pubes, however, so exactly resembles this latter species, we hesitated, and wrote for information from the sender, who forwarded us some dry flowers, which at once removed all doubts from

our minds, and enabled us to offer O. sarcodes with a degree of confidence that we otherwise should not have felt. Since then we have from time to time received additional consignments of the species from the same party, so that its whereabouts in Brazil is well known, and we have great pleasure in publishing it for perhaps the first time." Dr. Lane's confirmation is interesting, and it may be added that in the *Flora Brasiliensis* Prof. Cogniaux only gives the garden records.

We now come to the question of possible natural hybrids of O. sarcodes, and, as already remarked, I have long suspected O. amictum, Lindl., to be a hybrid between it and O. pubes. It was described and figured in 1847 (*Bot. Reg.*, xxxiii. t. 66), as a Brazilian plant which flowered with Messrs. Loddiges in April of that year. It agrees with the two species mentioned in habit, while the flowers are about intermediate in size, colour and structural details. It is significant that no one has ever obtained an importation of it, but I suspect that some of the forms between O. sarcodes and O. pubes for which Dr. Lane can find no classification will have to be referred here. I find also a significant note by Mr. Day. In June, 1875, he painted a flower (*Orch. Draw.*, xviii. t. 70) from a plant purchased a few days earlier for £15 at a sale of Mr. W. Bull's, held at Stevens' Rooms. It was sold under the name of Oncidium curtum, but is different from Lindley's plant of that name (*Bot. Reg.*, xxxiii. t. 68). Mr. Day remarked: "It is very much like O. Forbesii and O. crispum, but differs much in the form of the bulbs. This has no column wings. It appears to me to approach O. sarcodes—perhaps it may be a hybrid." In June, 1877, he painted the inflorescence, besides making a drawing of the whole plant (*l.c.*, xxii., tt. 7, 8). He then remarked that the plant, though purchased at Bull's Sale, was grown and flowered by Mr. W. Marriott, of Edmonton, and added: "There were four others, so-called, but I thought only one of them was true." The plant figured seems to be a form of O. Gardneri, Lindl., which I have suggested is probably a hybrid, though from a different parentage. The question must be reconsidered in the light of the above facts.

R. A. R.

SOBRALIA LILIASTRUM.

A FLOWERING branch of a Sobralia has been sent from the Birmingham Botanic Garden, by Mr. T. Humphreys, which was recently determined as S. Elisabethæ (*Gard. Chron.*, 1909, i. p. 83). The plant was figured and described by Schomburgk, in 1841 (*Verh. Befoerd. Gartenb. Preuss.*, xv. p. 135, tt. 1, 2), as a native of British Guiana, but proves identical with the earlier S. Liliastrum, Lindl. (*Gen. & Sp. Orch.*, p. 177), a species very rarely seen in cultivation, though a flower was figured by Mr. Day in July, 1868 (*Orch. Draw.*, xiv. t. 25), and is recorded as "imported from Brazil by

Messrs. Hugh Low & Co. in April, 1864, and flowering now for the first time." Whether it had flowered previously in cultivation is uncertain, for there are no dried garden specimens at Kew, though when Lindley figured the plant, in 1839, from a drawing sent by Schomburgk to Messrs. Loddiges (*Sert. Orch.*, t. 29), he remarked: "Through the exertions of Mr. Schomburgk Messrs. Loddiges have at length added the white variety of this interesting plant to our collections. The species was originally discovered at Bahia by Salzmann, growing in sandy thickets, and afterwards in British Guiana by Schomburgk. Schomburgk made paintings, showing a white variety and another with rose-coloured petals and lip, both of which appear in Lindley's plate. The history of S. Elisabethæ is curious, and indeed the name should never have been published, for two years previously Lindley had shown the identity of the two plants, and remarked: "Mr. Schomburgk, being misled by an erroneous description of the pollen masses of Sobralia, had regarded his plant as a new genus, and had sent drawings to Baron Humboldt for publication. . . . Neither the genus nor species is new, as has been supposed." He also added that Mr. Schomburgk supposed the red and white specimens belonged to different species, though the flowers appeared to be the same, and in any case the white one most certainly agreed with that from Bahia. S. Liliastrum belongs to the racemose section of the genus, the flowers being borne in succession from the axils of the bracts, which are borne distichously on a zigzag rachis, and the one sent by Mr. Humphreys shows twelve bracts, there being two undeveloped buds above the expanded flower. The flower is white, with the exception of the lemon yellow disc, as is also that drawn by Mr. Day. It is interesting to find the plant at last established in cultivation, and to clear up the confusion in its history.

R. A. R.

CALENDAR OF OPERATIONS FOR OCTOBER.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

THE last fortnight of bright weather has been a great help to Dendrobes, Cattleyas, Calanthes, &c., which were badly in need of sun to ripen them, after the dull summer we have had. Every advantage should be taken of bright days, and the syringe should be freely used in the morning, and ample ventilation afforded. The glass should also be kept clean, so as to get every benefit possible from the sun. Keep the fires low just while the sun is bright, but they should be kept clean and ready to start if the weather should change suddenly, as nothing is more harmful than sudden changes of temperature.

THRIP.—In last month's *Orchid Review* I noticed an article on Thrip (pp. 281-282). This is about the worst time of the year for these insects, just as the damping is being slackened and more fire heat used. The plants

are a little soft, and the extra dryness needed for winter seems to start the thrip going. The best remedy I find is the syringe and clean water used properly. We use the *jet* syringe, with the finger as a spreader. The finer the spray, the better it covers the leaves *all over*. It is not the quantity of water but the way it is used which keeps thrip down. Several people have written to me when I have advised this method, wanting to know what time it should be done, and how they were to prevent it from rotting the centre of the growths. There is no danger of growths rotting unless the plants are simply drowned with a rose syringe, which is commonly used because it is less trouble, but a little practice with a jet syringe will soon enable one to use it properly. We very seldom use insecticide, and when it is used it is made very weak. Any good make is suitable if used with care, and for safety rather under the strength given on the tins or bottles. One of the chief causes of injury to growths is insecticide carelessly used. There is a large collection of Cypripediums here, and neither thrip nor thrip marks can be found on the plants. The preventative used is the syringe and clean water, and care taken in using it, and we never lose young growths in the way mentioned.

ONCIDIUMS.—Many varieties will now be pushing up their flower spikes, and should be given a light position and carefully watered until the spikes are developed. Many varieties, such as O. varicosum Rogersii, Gardneri, crispum, ampliatum, incurvum, &c., throw tremendous spikes, considering the size of the plants, and should the latter show any signs of shrivelling, the spikes should be removed as soon as the flowers are developed, for often the strain of carrying a large spike will mean the loss of the plant if not carefully watched. Many of the Oncidiums are small, but very interesting flowers when closely examined. With few exceptions, Oncidiums like Intermediate house treatment, with a fair amount of sunshine. The bulbs should be ripened as much as possible before the dull days, as when soft they are liable to rot off in the winter, especially if they happen to get a drop too much water. O. Lanceanum will also be pushing up its flower spikes. This is a very sweetly-scented variety, and should be grown at the warm end of the Cattleya house or stove. It should be given plenty of water until the new leaves are fully grown, and then kept fairly dry until it commences to grow again. O. Papilio, the Butterfly Orchid, as it is commonly called, should also be grown warm. This species flowers at almost any time of the year, and if a plant seems at all distressed after it has been flowering for some time, the spike should be removed, otherwise it would go on flowering until it kills itself. O. Cavendishianum and carthaginense should also be grown in the stove, and given plenty of water until the new leaves are made up. These should now be in full growth, and kept well up to the light. Care must be taken not to overwater them in

the resting season, or the large fleshy leaves will soon rot off. Taking the Oncidiums generally, they are one of the most showy and useful classes of Orchids grown.

CALANTHE × VEITCHII.—Now that the plants are pushing their flower spikes they should have manure water given them every time they are watered, as it helps to make strong spikes, and also gives much better coloured flowers. They should be given a light position, and the temperature should not be allowed to drop below 65°, with a little ventilation. Care must be taken not to overwater them, but do not let them suffer for want of water. When they commence to flower they will last a long time if carefully attended to in the matter of water and temperature. They make a fine show when staged with a few ferns amongst them to compensate for the loss of leaves at this period, and they are also very useful for cutting. The evergreen varieties are mostly summer-flowering, and should be kept growing until they show their spikes, when they should be given slightly drier treatment until they have finished growing.

CYMBIDIUM TRACYANUM AND GIGANTEUM will be showing their spikes, and should be given a little manure water if the plants are pot-bound. These like an intermediate temperature, and a plentiful supply of water while they are growing. They are very beautiful varieties, and flowering as they do in the winter are very useful. The flowers will last a long time in perfection. The foliage should be syringed on fine days till the flowers open, as they are rather subject to red spider. They are not particular as to where they are grown, so long as the temperature does not drop below 55°, and they get plenty of water just while they are growing.

LYCASTE SKINNERI will soon be finishing its growth, and should be given plenty of water until the bulbs are mature, and a temperature of not less than 55° at night. A drier atmosphere than the Cool house is necessary, or the leaves will spot. They are wonderful flowers to last, but are easily bruised, so care should be taken to stake the flowers clear of the leaves, and to handle them carefully when moving them to their flowering quarters. They like an airy position to grow in, and should be syringed on fine days to keep the foliage clean. L. Deppei, Lawrenceana and aromatica will need similar treatment. L. Lawrenceana is a very free flowering and pretty variety, and useful for buttonhole work.

PHALÆNOPSIS.—As the days get shorter these will need less water and less moisture in the atmosphere. A sharp look-out must be kept at all times for slugs, as they soon spoil the appearance of an otherwise fine plant. After the tips of the roots are sealed over they will only need sufficient water to keep the leaves plump. As soon as the spikes appear they should have a piece of cotton wool wrapped round the base, as an extra safeguard against slugs. This is only useful while the wool is dry, so that it must be

replaced with fresh wool each time it gets damp. A light spraying over with insecticide will keep the foliage free from thrip and spider, and also act as a preventative against slugs. Phalænopsis like a sunny position during the winter months, and a stove temperature at all times to keep them in perfect health.

SEEDLINGS of all sorts should be kept moving as fast as possible. Do not let them become pot-bound at any time until they are of flowering size. As fast as they require it give them a shift into a slightly larger pot, but do not overpot them. A pot large enough to work a little fresh material all round will keep them growing and in a healthy condition. The pots must be kept clean, as well as all their surroundings. Scrub all wood-work and staging whenever re-staging is being done. Rubbish should not be allowed to lie about in the houses, as it forms a harbour for woodlice, &c. All empty pots should be cleared out that are not wanted for staging purposes, and not stored away under the stages. A nice light house, span-roofed if possible, and not too lofty, is best for seedlings. As the seedlings get to flowering size they should be removed to a temperature of about 5° lower, to give them a chance of throwing as good a flower as possible. Stage them as near the glass as possible with safety. Where lath roller blinds are used they will be found very useful during the winter months if they are rolled out every night, as they will help to maintain an equal temperature, and anything staged near the glass is not so likely to feel a drop in the outside temperature as where these are not used. Russian mats will be found very useful if they are stretched over the roof at night. They can easily be made fast with ropes thrown over the roof.

DAMPING DOWN.—A little judgment must be used when damping during the next few months. The outside conditions must be taken into consideration, especially where the houses are not very well heated. Where the grower has good boilers and well heated houses he is pretty safe to use plenty of moisture at almost any time, but where they are underheated—and the majority of houses are, so far as my experience of them goes—one is pretty well ruled by outside conditions. If the houses do not dry quickly no hard and fast line should be followed, but damp them as often as they dry. Where blinds are used they will be found a great help in frosty weather. We use ours every night, as on a mild night one needs very little fire with them run out, and in a snowstorm they are as good as a blanket. Temperatures should read about as follows in the mornings: Cool house 55°, Intermediate house 60°, Cattleya house 65°, Stove or Warm house 70°. Allow a rise of 10° by sun heat, and 5° at midday, if fire heat has to be used all day. Always endeavour to keep the temperatures as even as possible, not have 10 or 15 degrees difference from day to day, as plants will not do well in an uneven temperature.

LÆLIA CRISPA.

This fine old species is now flowering freely in some of our collections, and is one of the parents of several very beautiful Læliocattleyas, as L.-c. exoniensis, Nysa, Pallas, and over a dozen others. It was introduced to cultivation as long ago as 1826, in which year it was sent from Rio de Janeiro to the Horticultural Society of London by Sir Henry Chamberlain. It flowered for the first time in Europe in the Society's garden at Chiswick in August of the following year, and shortly afterwards was described and figured by Lindley under the name of Cattleya crispa (*Bot. Reg.*, t. 1172). It is a true Lælia, however, having eight pollinia, and was referred to that

Fig. 23. Lælia crispa.

genus by Reichenbach, in 1853 (*Fl. des Serres*, ix. p. 102). It grows on the Organ Mountains, according to M. Forget, in touch with L. Dayana, L. pumila, L. Perrinii, Cattleya Dormaniana, C. bicolor, and C. velutina, he having collected all of them at Novo Friburgo at the same time. He remarks: "They are cool temperate growers, that is to say, that immediately the sun sets one feels quite chilly in this part of the Organ Mountains." It is also a native of the States of Sao Paulo and Minas Geraes, in the latter, according to Messrs. Veitch, in the southern parts of the province, at an elevation of 2,500 to 3,500 feet.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Royal Horticultural Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on August 31st, when there was a very good display of Orchids, including a handsome new Odontioda to which a Certificate of Appreciation was given. The other awards were five medals, two Awards of Merit, two Botanical Certificates, and one Cultural Commendation. There was also a magnificent collection of about 150 photographs of Chinese plants and scenery, taken by Mr. E. H. Wilson, in his recent collecting trip on behalf of Harvard University, U.S.A., but the only Orchid included was one showing a fine clump of the handsome Cypripedium tibeticum growing in its native habitat.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), staged a choice group of hybrids, raised in the collection, to which a Silver Flora Medal was awarded. A Cultural Commendation was also given to Mr. Alexander in recognition of the excellent culture shown. The group contained a beautiful form of Brassocattleya Mariæ (C. Warneri × B. Digbyana), good examples of Sophrocatlælia Medeia, Cattleya × fulvescens with seven flowers, a fine plant of C. × Euphrasia Westonbirt var., with two spikes of seven flowers each, C. × Iris, a very richly-coloured form of Læliocattleya Fournieræ, L.-c. Lustre Westonbirt var., the beautiful L.-c. Golden Oriole, with rich golden sepals and petals, and the remarkably distinct Westonbirt var., in which these organs are deep purple, and the throat of the lip veined with yellow. An Award of Merit was given to the latter.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), also received a Silver Flora Medal for a fine group, including the handsome Læliocattleya St. Gothard, L-c. bletchleyensis var. Othello, the dark L.-c. Chloe Goodson's var., L.-c. elegans, and a pretty hybrid between Cattleya velutina and Lælia crispa, some interesting Brassocattleyas, Cattleya × Iris, C. × Crashleyi, a pretty form of C. × Hopkinsii, two very distinct forms of C. × Adula, namely Goodson's var., having yellow sepals and petals, and Bronze Wing, with these organs salmon-rose, Miltonia candida grandiflora, Odontoglossum crispum Herbertii, Cypripedium × Juno, C. × H. S. Goodson, and other interesting things.

M. H. Graire, Amiens, France (gr. Mr. Devoss), sent Odontioda Graireana, a remarkable hybrid derived from Odontoglossum Rossii and Cochlioda Nœtzliana, to which a Certificate of Appreciation was awarded. It was most like the Odontoglossum in habit, and bore a raceme of six brilliantly-coloured flowers. It is described on p. 315.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. Black), sent

three good plants of the handsome Odontioda Thwaitesii, five very distinct forms of Cattleya × Adula, showing much variation in colour, a fine hybrid of Lælia pumila of which the second parent is doubtful, Sophrocattleya warnhamiensis atropurpurea, a deep ruby-crimson variety, with some light yellow at the base of the lip, and S.-c. Blackii (S. grandiflora × C. × Hardyana), a very beautiful hybrid, to which an Award of Merit was given. The inflorescence bore two flowers, with a general appearance to those of S. Doris, and the colour scarlet-red, with some yellow at the base of the lip.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), sent the beautiful Warscewiczella amazonica (Lindeni), a large white flower, lined with violet-purple at the base of the lip, and Listrostachys forcipata, an interesting little species, having equitant leaves, and an umbellate inflorescence of pellucid white flowers, a Botanical Certificate being given to the latter.

F. W. Moore, Esq., Royal Botanic Gardens, Glasnevin, exhibited Dendrobium muricatum (Finet), a remarkable species from New Caledonia, to which a Botanical Certificate was given.

Arthur Burr, Esq., Lynwood, Udney Park, Teddington, showed a good form of Læliocattleya eximia.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a very pretty little group, including a well-grown Lælia monophylla with ten flowers, Cirrhopetalum guttulatum with four spikes, Dendrobium ciliatum annamense, the dwarf Epidendrum (Nanodes) Matthewsii with nine blooms, and a well-flowered plant of Masdevallia nidifica.

F. Lowenadler, Esq., Badgemore, Henley-on-Thames (gr. Mr. Hutton), sent a good example of Dendrobium acuminatum, bearing a spike of ten pretty rose-purple flowers.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine), sent a pretty little group of hybrids mostly raised in the collection, consisting of five plants of Cypripedium × Maudiæ, each with two flowers or buds, a good form of C. Watsonianum, C. × A. de Lairesse, with two fine blooms, and C. × John Clark (Harrisianum superbum × Fairrieanum), a well-coloured hybrid most resembling the former in general character.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, to which a Silver Flora Medal was awarded. It contained the handsome Zygopetalum × Roeblingianum, the rare Miltonia Schrœderiana, M. × Hyeana superba, a beautiful example of Odontoglossum crispum xanthotes Charlesworthii, O. × Eleanor, O. Harryanum, Lycaste Skinneri alba, a good Cycnoches maculatum, a well-flowered Cœlogyne × Brymeriana, Oncidium incurvum, O. ornithorhyncum album, Cattleya × Venus, C. × Rhoda, C. Harrisoniana alba, C. × F. W. Wigan, C. × Mrs. Pitt, Læliocattleya Elva, L.-c. callistoglossa, Cypripedium × Lawrebel, and others.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including two plants of the handsome Cypripedium × Rossetti, Angræcum infundibulare, Listrostachys Chailluana, the handsome Cattleya × Iris, C. × Pittiana, C. × Wavriniana, and a very handsome hybrid from C. Mendelii × Whitei, having blush-white sepals and petals, and a strongly three-lobed lip, with a rose-coloured front lobe, and some yellow on the isthmus. Sophrocatlælia Danæ, Læliocattleya elegans, a pretty hybrid between Cattleya Grossii and Læliocattleya callistoglossa, having purple sepals and petals, and a lip closely resembling C. Grossii in shape and colour, with the addition of a pair of small whitish side lobes, Dendrobium pulchellum, a few plants of D. regium, Rhynchostylis retusa, and other good things.

Messsrs. Stuart Low & Co., Bush Hill Park, Enfield, received a Silver Banksian Medal for a good group, containing some good forms of Cycnoches maculatum, Cattleya Gaskelliana alba, C. velutina, C. × fulvescens, C. × Atalanta, C. × Adula, C. × Pittiana, Oncidium Lanceanum, O. oblongatum, Bulbophyllum Dearei, Dendrobium formosum, Cypripedium × Wm. Lloyd, C. × Haywoodii, Odontoglossum Pescatorei, a fine Cœlogyne Massangeana, Miltonia Warscewiczii, &c.

Messrs. William Bull & Sons, Chelsea, sent a pretty little group of seedling Cattleya × Maroni (velutina × Dowiana), showing much variation in colour, with examples of C. × Pittiana, C. × Macænas, and Læliocattleya Parysatis.

Mr. E. V. Low, Orchid Nursery, Vale Bridge, Haywards Heath, sent two very good plants of Cattleya Gaskelliana alba, and the remarkable Bulbophyllum grandiflorum.

Mr. H. A. Tracy, Twickenham, showed a good form of Anguloa eburnea.

At the meeting held on September 14th there was a good display of Orchids, and a specially interesting feature was a fine plant of Cycnoches stelliferum bearing flowers of both sexes. The awards consisted of four medals, one Award of Merit, one Botanical Certificate, and two Cultural Commendations.

The President, Sir Trevor Lawrence, Bart., K.C.V.O., Burford, Dorking (gr. Mr. White), sent the pretty little Sophrocatlælia Danæ, S.-c.-l. pum-eximia (L. pumila × Sophrocattleya eximia), and a very fine specimen of Angræcum Kotschyanum with eight long racemes, the best bearing fifteen flowers, this gaining a Cultural Commendation. He also received a Botanical Certificate for a good plant of A. stylosum, bearing a pendulous raceme of twelve white flowers.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), received a Cultural Commendation for a fine plant of Angræcum Eichlerianum,

bearing thirteen flowers on a stem about three feet high. The flowers are borne singly on short axillary scapes, and are green with a broadly dilated white lip and a short inflated spur. He also sent plants of the chaste Dendrobium Phalænopsis album, and D. P. Gatton Park var., with lilac coloured flowers marked with slaty blue on the lip.

J. Foster Alcock, Esq., Exhims, Northchurch, sent Cypripedium × Wiertzianum Exhims var.

R. G. Thwaites, Esq., Christchurch Road, Streatham (gr. Mr. Black), sent several good forms of Cattleya × Adula, C. × Roupelliana (superba × Hardyana), a fine and very richly coloured novelty, bearing a deep rose-purple flower, with some darker colour in the throat, and Sophrolælia Ortoni (S. grandiflora × L. × Diana), a pretty scarlet flower with a yellow throat to the lip.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, to which a Silver Flora Medal was given. It contained a fine series of Cattleya × Iris, showing much variation in colour, C. Gaskelliana alba, a fine form of C. × Venus, C. × St. Gothard, a brilliant series of Sophronitis hybrids, including Sophrocattleya eximia, Sophrolælia heatonensis, S.-l. Gratrixiæ, Sophrocatlælia Leda, and the richly coloured S.-c.-l. Marathon, Oncidium ornithorrhynchum album, Epidendrum ciliare, Maxillaria grandiflora, two well-bloomed plants of M. Meleagris, Gomesa planifolia, &c.

Messrs. Stuart Low & Co., Bush Hill Park, Enfield, received a Silver Flora Medal for a fine group, including some good plants of the bright yellow Oncidium oblongatum, O. Marshallianum, O. unicorne, Cœlia macrostachya, Cycnoches maculatum and chlorochilon, Angræcum distichum, Cattleya Haroldiana var. Hildegard, a beautiful white flower with some violet marbling on the front of the lip, Brassocattleya Pocahontas alba, Lælia pumila delicata, Sophrocatlælia Danæ, a good plant of Physosiphon Loddigesii, the pretty little Waluewa pulchella, Sigmatostalix radicans, Cirrhopetalum refractum, and other interesting things.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, which contained a remarkable example of Cycnoches stelliferum (C. Egertonianum var. viride), bearing a long male inflorescenc and two short female inflorescences on the same pseudobulb, some fine examples of Cattleya × Iris, C. × Pittiana, C. × Wendlandiana, Lælio-cattleya Phœnix (C. Dowiana × L.-c. Henry Greenwood), a beautiful hybrid having light buff sepals and petals tinged with rose, and a claret-purple lip with some deep yellow in the throat, L.-c. carissima (C. Harrisoniana × L.-c. Charlesworthii), L.-c. Lucinda (C. bicolor × L. purpurata), L.-c. Nysa, bletchleyensis, Ella, and Baroness Schröder, the pretty little Sigma-tostalix radicans, Polystachya leonensis, Rhynchostylis retusa, and other good things.

Mr. E. V. Low, Orchid Nursery, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a small group of choice things, including forms of Cattleya × Iris and C. × Adula, a fine form of C. × conspicua (Grossii × Gaskelliana), with sepals and petals of a dusky rose tint, and the lip rosy lilac with small whitish side lobes, Cypripedium × Nandii, C. × Maudiæ, C. × Lord Ossulston, &c.

Messrs. Stanley & Co., Chase Side, Southgate, sent a very pretty hybrid Cattleya, called C. × iridescens, and said to be a hybrid from C. bicolor and C. Eldorado. There were seven plants differing greatly in colour, to one of which, called var. splendens, an Award of Merit was given. It had cream-coloured sepals and petals with a slight suffusion of rose, and the base and small side lobes of the lip white, the isthmus deep yellow, and the front lobes marbled with purple and margined with white.

Messrs. J. & A. A. McBean, Cooksbridge, Sussex, sent a pretty little group, including a good specimen of Vanda Sanderiana with two spikes, two good plants of Oncidium incurvum album, Cattleya Dowiana, C. × Iris, Dendrobium Dearei, Cypripedium Rothschildianum, C. insigne Sanderianum, C. × James H. Veitch, &c.

Mr. H. A. Tracy, Twickenham, sent a good plant of Cirrhopetalum guttulatum, bearing several umbels of greenish white flowers, spotted with purple.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

A very fine show of plants and flowers appeared at the Society's meeting held on September 9th. The seasonable and beautiful Cattleya × Iris was much in evidence, ranging in colour from pure yellow to deep chocolate brown.

J. Talbot-Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a splendid group, which included many rare and beautiful hybrids and botanical species. A particularly fine form of Vanda cœrulea, of deep blue colour, stood out very prominently, and this was awarded a First-class Certificate, and a fine piece of the rare Dendrobium acuminatum, bearing ten flowers, received a similar award. Cattleya × Lytham Hall (Grossii × Gaskelliana), C. × Maroni Clifton's var., and C. × Armstrongiæ received Awards of Merit, also Læliocattleya Nysa Lytham Hall var., the rare Miltonia Schrœderiana Houlletia odoratissima, Angræcum Eichlerianum and Phalænopsis Regnier Coundon Court var., whilst First-class Botanical Certificates went to P. Regnieri, Angræcum Scottianum, and Stenoglottis longifolia. The group included many Odontoglossums, Cattleya Gaskelliana alba, C. × Wavriniana, C. × suavior, Cœlogyne pandurata, Lycaste × Mrs. Rogerson, &c. (Silver-gilt Medal).

Ziba A. Ward, Esq., Northenden (gr. Mr. Weatherby), staged a very

effective group, which included many varieties of Cattleya × Iris, well-flowered C. Gaskelliana alba, C. granulosa, Cycnoches chlorochilon, Odontoglossum × ardentissimum xanthotes, O. × loochristiense, and many others (Silver-gilt Medal).

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a nice miscellaneous group, which included Cattleya × Iris, C. Eldorado, C. Dowiana aurea, and Læliocattleya callistoglossa. Cattleya × Miss Barney (Eldorado × bicolor) received an Award of Merit. I noted also a fine pan of Miltonia spectabilis Moreliana, Cypripedium Parishii with seven flowers, C. Curtisii, C. Spicerianum, Odontoglossum Uroskinneri, Oncidium incurvum, &c. (Silver Medal).

Richard Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), gained a Silver Medal for a bright group, which included Cattleya × Iris, C. Gaskelliana in variety, Odontoglossum crispum, O. × mirificum, Miltonia × Bleuana, &c., all showing evidence of good culture.

Norman Galloway, Esq., Great Horton, Bradford, staged a nice group of mixed plants. Cypripedium × pictum (Polletianum × Ashburtonæ) gained an Award of Merit. I noted a distinct Cypripedium bellatulum, a good Odontoglossum grande, &c. (Silver Medal).

J. H. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), staged a seasonable group of Cypripediums, for which he was awarded a Bronze Medal. The group included C. × gigas Corndean Hall var., C. Fairrieanum, C. × Maudiæ and the var. roseum, C. × St. Albans, C. × Rappartianum, &c.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), was awarded a Bronze Medal for a group of Cattleyas and hybrids. C. × Iris Hey House var., Læliocattleya Bayardo, and L.-c. Henrietta received Awards of Merit. I noted a good L.-c. callistoglossa, &c.

E. Rogerson, Esq., Oakdene, Didsbury, staged a group consisting chiefly of Cypripediums, which gained a Bronze Medal. C. × Martha E. Rogerson (Godefroye × niveum), received an Award of Merit. I noted C. × Rossetti, C. × Olga Bagshaw, C. × Stanley Rogerson, C. × Lord Derby, C. × niveum, and Cattleya × Hardyana, Rochford's var.

Chas. Parker, Esq., Ashton-on-Ribble, sent a small group of Cypripediums, in which I noted C. × Massaianum, C. × Ultor, C. × Maudiæ, C. × Burtoni, &c. (Bronze Medal),

Herbert Arthur, Esq., Blackburn, showed a distinct form of Oncidium × Mantini.

J. Rutherford, Esq., M.P., Beardwood (gr. Mr. Lupton), showed Brassocattleya Maronæ in good form.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), showed the fine new albino hybrid Cypripedium × Holdeni (callosum Sanderæ × Maudiæ), and

Cattleya × Iris Auburn House var., both of which gained First-class Certificates.

The Rev. J. Crombleholme, Clayton-le-Moors, received an Award of Merit for Cypripedium argenteum.

The Liverpool Orchid and Nursery Co., Gateacre, staged a fine group of Cattleyas, Læliocattleyas, &c., including many choice hybrids. I noted Cattleya granulosa, many varieties of C. × Iris, and a very pleasing hybrid from Lælia purpurata × C. bicolor, Læliocattleya bletchleyensis, L.-c. Dominiana, and many others (Silver Medal).

Messrs. Keeling, Westgate Hill, Bradford, staged a mixed group. The four following gained Awards of Merit: Cypripedium × Aphrodite var. roseum, C. × Lily Measures, C. × dourdanense, and Odontoglossum bictoniense album. A Cultural Certificate was given to a fine plant of Cypripedium × Burtoni.

Messrs. Moore & Co., Rawdon, Leeds, staged a nice group, which included the beautiful Cattleya × Adula (Hardyana × bicolor), C. × Iris, Læliocattleya Myra, L.-c. Berthe Fournier, Dendrobium Dearei, Zygopetalum rostratum, &c.

Mr. J. Robson, Altrincham, staged a good variety of Cattleya × Iris, also C. Gaskelliana alba and C. Harrisoniana.

Mr. W. Bolton, Wilderspool, Warrington, sent an exceptionally dark form of Miltonia spectabilis Moreliana and a good Cattleya × Hardyana.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent Cypripedium × Fletcherianum (Mabeliæ × Godefroyæ leucochilum), a fine hybrid which gained a First-class Certificate, and Cattleya × Iris Vale Bridge var. (Award of Merit.)

Mr. J. Birchenall, Alderley Edge, showed Bollea Lalindei and a fine Stanhopea of the insignis type.

At the meeting held on September 23rd there was again a very good exhibition, the quality being excellent. Over 80 plants were placed before the Committee, which sat as follows:—Messrs. E. Ashworth (Chairman), Thorp, Ward, Cowan, Arthur, Warburton, Ball, Shill, Keeling, Holmes, Ashton, Parker, and Weathers (Hon. Sec.).

J. Talbot-Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a large and effective group, consisting of many choice plants. Sophrocatlælia De Vere Beauclerc, a hybrid of rich warm crimson of medium size, gained a First-class Certificate, Awards of Merit being given to Dendrobium glomeratum and Saccolabium violaceum var. Harrisonianum. I noted a very pretty Pachystoma Thomsonianum, a fine Cattleya Dowiana aurea, Phalænopsis amabilis Rimestadiana, Dendrobium formosum, many Odontoglossums, &c. (Silver-gilt Medal).

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a varied group of plants, which gained a Silver Medal. A specially fine variety of Oncidium Kramerianum received a First-class Certificate, an Award of Merit being given to Læliocattleya Golden Oriole. The group included many well-grown Læliocattleyas, intermixed with Cypripedium Fairrieanum, C. Spicerianum, &c.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a group of choice plants. A new hybrid, Læliocattleya Miss Marjorie Warburton, a flower of rich colour and large size, received a First-class Certificate, the same award being given to L.-c. Mont Blanc, Odontoglossum Uroskinneri var. Orpheus, a dark variety, and Cypripedium Godefroyæ The President. An Award of Merit was given to Læliocattleya Constance Wigan, Westfield var. The group included Cattleya × fulvescens, Cypripedium × Watsonianum, C. × Curtisii-Morganiæ, C. × Massaianum, &c. (Silver Medal).

J. Rutherford, Esq., M.P., Beardwood, Blackburn (gr. Mr. Lupton), gained a Silver Medal for a good group, which included plants of Cattleya bicolor, Læliocattleya Nysa, Brassocattleya Maronæ, &c., the whole backed with some well-flowered plants of Oncidium varicosum of good type.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), received a Silver Medal for a group of Cattleya and Læliocattleya hybrids, which included C. × Parthenia vernalis, C. × Adula magnifica, and C. Gaskelliana var. Vesta Tilley, all of which gained Awards of Merit.

G. Shorland Ball, Esq., Burton, Westmorland (gr. Mr. Herdman), received an Award of Merit for Cattleya × Adula Ball's var., and First-class Botanical Certificates for Oncidium Ballianum and Cirrhopetalum Medusæ.

J. J. Holden, Esq., Auburn House, Southport (gr. Mr. Johnson), gained a First-class Certificate for Cattleya × John Holden, a fine hybrid from C. × Fabia × C. × Hardyana, and an Award of Merit for Cypripedium × Dorothy Neil.

Chas. Parker, Esq., Ashton-on-Ribble, received a Bronze Medal for a small group of Cypripediums, and an Award of Merit for C. × Kubele.

Norman Galloway, Esq., Great Horton, Bradford, sent a small group of mixed plants, in which I noted Dendrobium Dearei, Cypripedium bellatulum, &c. (Bronze Medal).

Saml. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Shill), sent the fine new Cypripedium J. E. Shill (gigas × Leeanum), which gained a First-class Certificate.

Ed. Rogerson, Esq., Oakdene, Didsbury, sent Cypripedium × Hannibal (nitens × Leeanum), a grand flower with a bold dorsal sepal (First-class Certificate).

Richd. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), received an Award of Merit for Cattleya × Davisii.

E. Ashworth, Esq., Harefield Hall, Wilmslow (gr. Mr. Holbrook), sent Læliocattleya × Mrs. John Ashworth (Award of Merit).

J. H. Bromilow, Esq., Rann Lea, Rainhill (gr. Mr. Morgan), staged a small group of Cypripediums, including C. × Ultor, C. × St. Albans, C. bellatulum, and C. × gigas Corndean Hall var.

Messrs. Stuart Low & Co., Enfield, sent a good group of fine things, and received Awards of Merit for Cœlogyne speciosa albicans, a very fine Vanda Kimballiana, Cattleya Gaskelliana Princess, Sophrocatlælia × Medeia, and the rare Oncidium oblongatum citrinum. I noted also the straw-yellow Læliocattleya ilsingtonense, Trichopilia nobilis, &c.

Messrs. Cowan, Ltd., Gateacre, staged a fine group, the hybrids from Cattleya bicolor and C. granulosa prevailing. Cypripedium × Evenor gained an Award of Merit. The group included Brassocattleya × Thorntoni, Cattleya × Vulcan, Vanda cœrulea, V. Kimballiana, and several Cypripediums of good quality (Silver Medal).

Mr. John Robson, Altrincham, sent Cycnoches maculatum (Award of Merit), several good Cattleya × Iris, C. Gaskelliana, Cypripedium × triumphans, &c.

Mr. W. Bolton, Wilderspool, Warrington, sent Cypripedium Fairrieanum, C. × Rappartianum, and a good C. × Hitchinsiæ.

Mr. W. Shackleton, Great Horton, Bradford, sent several plants of Odontoglossum crispum of good type.

Messrs. Keeling, Westgate Hill, Bradford, received a Vote of Thanks for a small group. H. THORP.

THE HYBRIDIST.

SOPHROCATTLEYA BLACKII.—A handsome hybrid raised in the collection of R. G. Thwaites, Esq., of Streatham (gr. Mr. Black), from Sophrocattleya grandiflora ♀ and Cattleya × Hardyana ♂, to which an Award of Merit was given at the R.H.S. meeting held on August 31st last. The plant is of dwarf, compact habit, bearing a considerable general resemblance to Sophrocattleya Doris (S. grandiflora × C. Dowiana), and the inflorescence is at present two-flowered. One of the flowers has now been kindly sent. It measures four inches from tip to tip of the petals, and most resembles the Sophronitis parent in shape, being well expanded, and the petals 1¼ inches broad. The lip is three-lobed, with a broad, nearly square front lobe, and infolded side lobes. The colour may be described as bright scarlet suffused with cherry red, and the lip crimson with a deep yellow throat. It is darker in colour than Sophrocattleya Doris, and a very charming little plant.

Odontioda Graireana.—A remarkable hybrid, raised by M. H. Graire, Amiens, France, from Odontoglossum Rossii × Cochlioda Nœtzliana, to which a Certificate of Appreciation was awarded at the R.H.S. meeting held on August 31st last. The plant closely resembles the Odontoglossum in habit, the bulbs being ovate, somewhat compressed, and bearing a broad spreading leaf at the apex. The inflorescence is arcuate, and at present bears six flowers, one of which has been kindly sent, and measures 2¼ inches from tip to tip of the petals. It is fairly intermediate in shape, the petals being elliptical-ovate, and acute, and the sepals narrower, while the lip is strongly three-lobed, and over an inch long. The sepals and petals may be described as light scarlet, inclining to salmon-colour, with the apex and margins of the petals light rose, and the lip pale creamy yellow with a suffusion of pink. The lip is free from the column, and the front lobe strongly recalls O. Rossii, being suborbicular, undulate at the margin, and nearly ¾ inch broad. The side lobes are broadly rounded, and the large oblong crest is four-lobed in front, and bright yellow, with the basal part brown. The column is rose-coloured behind and paler in front, with a pair of rounded wings. It is a very distinct and striking form.

Odontoglossum × moortebeekiense.—A very attractive hybrid, raised in the establishment of Messrs. Linden, Moortebeek, Brussels, from Odontoglossum Edwardii crossed with the pollen of O. cirrhosum, and most like an enlarged edition of the seed parent. It has oblong-lanceolate, undulate, very acuminate sepals and petals, which are deep violet-purple, with a lilac-coloured apex, while the lip is ovate-lanceolate, acuminate, and similar in colour, with a bright yellow crest. The flowers are about twice as large as in O. Edwardii, and very numerous.

Læliocattleya Dayana.—A very pretty little hybrid from the collection of H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), whose parentage is recorded as Cattleya velutina × Lælia crispa. It is rather larger than the Cattleya parent, and has oblong-lanceolate, buff yellow sepals and petals, the latter being somewhat undulate. The lip is strongly three-lobed, cream yellow, with acute reflexed side lobes, and a rounded undulate front lobe, veined with purple at the basal angles, this colour extending along the sides of the isthmus, and down the disc to the base, while the centre of the isthmus and base of the front lobe are yellow. It is a distinct and attractive little hybrid.

Cattleya × Crashleyi.—Another very pretty hybrid from the same collection as the preceding, said to have been raised from C. granulosa × Loddigesii. The sepals and petals are bright rosy-lilac, and closely resemble those of the latter parent in shape. The lip is strongly three-lobed, with broad white acute side lobes, and a broadly rounded, crisped, front lobe, which is reflexed at the sides, and closely veined with bright

crimson on a lilac ground. The isthmus is similar in colour, and rather shorter than in many of the granulosa hybrids.

CATTLEYA × IRIDESCENS.—A striking Cattleya, of which a group of seven plants was exhibited by Messrs. Stanley & Co. at the R.H.S. meeting held on April 14th last. It is said to have been raised from C. bicolor ♀ and C. Eldorado ♂, and is comparable with C. × Iris in general character. It is most like C. bicolor in shape, but larger, and the petals about twice as broad, while the lip is much dilated and distinctly crenulate or denticulate in front, with infolded side lobes about half as long as the column, and a long, deep yellow isthmus. The colour is surprisingly variable, for in three of the seedlings the sepals and petals were deep yellow, in two others distinctly purple, while in the remaining two they were orange-buff, with a suffusion of salmon colour. The front lobe of the lip is bright purple, in some cases with a whitish margin, in others wholly violet-purple. Four of the forms have been sent by Messrs. Stanley, but we saw the others. It is a very beautiful and variable hybrid, and Messrs. Stanley are confident that the parentage has been correctly recorded. The variety splendens had light yellow sepals and petals, with a suffusion of rose, and the front lobe of the lip was marbled with purple on a lighter ground and the margin nearly white.

ANGULOA UNIFLORA AND A. EBURNEA.

AN interesting Anguloa was exhibited at the R.H.S. meeting held on August 31st last by Mr. H. A. Tracy, of Twickenham, which was said to have been imported from Peru, and the Orchid Committee suggested that it was probably identical with that on which Ruiz and Pavon founded the genus. It was described as far superior to the smaller and more angular form generally seen in cultivation; the flower ivory white, of wax-like substance, and the labellum spotted with red in the interior (*Gard. Chron.*, 1909, ii. p. 174). I saw the plant and suggested that it was A. eburnea, and now that Mr. Tracy has sent the flower to Kew the identification can be confirmed. It is said to have been imported from Moyombamba by Mr. Kromer, together with Cattleya Rex.

Anguloa eburnea was figured in the *Orchid Album* in 1884 (iii. t. 133), as an exceedingly rare and very distinct species, which had been received from the collection of Sir Trevor Lawrence. It was said to be a native of Colombia. It appears to have been first described in 1868 (*Will. Orch. Gr. Man.*, ed. 3, p. 67). The details of the lip are not shown in the figure, but fortunately a flower was drawn by Mr. Day in August, 1883, with full analytical details (*Orch. Draw.*, xxxvii. t. 49). Mr. Day remarked: "This is a very rare species. I once had a single plant. Mr. B. S. Williams sent me this flower which he received from Sir Trevor Lawrence for the *Orchid*

Album." In July, 1891, Messrs. Sander sent to Kew for determination a flower which was said to have appeared in the collection of Mr. R. H. Measures, of Streatham, in an importation of A. Ruckeri, and two years later another came from M. A. Van Imschoot, of Mont St. Amand, Ghent, without record of origin; while in September, 1894, another flower came from Messrs. Sander, from a plant said to have been received from Peru. All these proved to be the true A. eburnea, and the flower now sent by Mr. Tracy is identical.

Anguloa uniflora, the original species of the genus, was described and figured by Ruiz and Pavon in 1794 (*Fl. Peruv. et Chil. Prodr.*, p. 118, t. 26), from materials collected by them during their mission to Peru about 1777-1780. It is described as occurring at Muna and Chinchao, and profusely in the district of Tarma, and Messrs. Veitch remark that it was found at the first-mentioned locality (about lat. 10° S.) by their collector, Walter Davis, associated with Cypripedium caudatum, growing among the scrub and long bushes, generally in partial shade.

In 1844 a plant was figured by Lindley under the name of Anguloa uniflora (*Bot. Reg.*, xxx. t. 60), which had flowered in the collection of Mr. G. Barker, of Birmingham, in April of that year. It is said to have been received among Colombian collections from Linden. This is the plant which has ever since borne the name of A. uniflora in gardens, but a comparison with the original figure of Ruiz and Pavon (above cited) shows marked discrepancies. In fact A. eburnea is the original A. uniflora, Ruiz and Pavon, for the globose shape, broad segments, ovate front lobe of the lip, and acute lobes of the rostellum are unmistakable. The garden plant may in future be called A. virginalis, Linden, which is its earliest unappropriated name.

R. A. R.

ORCHIDS IN SEASON.

Several handsome flowers are sent from the collection of H. S. Goodson, Esq., Fairlawn, Putney, by Mr. Day. Two forms of Cattleya × Adula (bicolor × Hardyana) show great diversity in colour. One called Goodson's variety has light greenish yellow sepals and petals, and a brilliant violet-rose lip, while in that called var. Bronze Wing the sepals and petals may be described as salmon-rose, and the lip is rather larger and more crimson in colour. Both are very beautiful and show a considerable general resemblance to C. × Iris. A fine hybrid from Cattleya Bowringiana × granulosa will be a form of C. × Hopkinsii (*Orchid Stud-Book*, p. 262), and has bright mauve-purple sepals and petals, most resembling those of the second parent in shape, while the lip is strongly three-lobed, with infolded white side lobes, a bright purple front lobe, with darker veins, and a trace of buff on the sides of the isthmus. The other is said to be a hybrid from Cattleya Leopoldi and Brassavola Digbyana, and thus should be a form of

Brassocattleya Praetii. It is much like a purple form of B.-c. Pluto, having bronzy purple sepals and petals, and a strongly three-lobed lip, with infolded, acute, lilac side lobes, tipped with purple, and a broad, bright purple, fringed front lobe; the isthmus also being purple and about as broad as long. Shortly afterwards came a magnificent form of Cattleya × Iris, called var. King Edward VII., having reddish buff sepals and petals, the latter over two inches broad, and the front lobe of the lip very undulate, rich carmine-purple, and $2\frac{1}{2}$ inches broad, while the short side lobes are salmon-coloured. Mr. Day considers it to be the most beautiful that he has ever seen. There are also good flowers of C. Hardyana, × Maroni, × Pittiana, and Læliocattleya bletchleyensis.

A flower of the handsome Sophrocattleya warnhamensis atropurpurea is sent from the collection of R. G. Thwaites, Esq., of Streatham. It measures over four inches in diameter across the petals, and the colour is dark crimson-purple with a yellow throat to the lip. The front lobe is elliptical-oblong, and somewhat undulated. A curious peloriate form of Odontoglossum crispum is also sent in which the sepals are of the same shape as the petals, and just as strongly crisped, while the lateral pair have a broad median yellow line on the basal half, with a few additional lines and traces of brown spots on the inner basal angles, the colour and markings resembling those of the crest of the lip. Cattleya × Adula var. Thwaitesii is a very distinct and brilliant form, having rose-purple sepals and petals, the latter $1\frac{3}{4}$ inches broad, and recalling the C. × Hardyana parent in shape, and the front lobe of the lip intense purple-crimson, two inches broad, with a very short isthmus, and the side lobes bright rose.

Several interesting Orchids are sent from the collection of His Honour, Judge Philbrick, K.C., Bodorgan House, Bournemouth. There is a good, brightly-coloured form of Læliocattleya elegans, an inflorescence of Odontoglossum × Andersonianum, and a fine flower of Phragmopedilum × grande atratum, the latter from a plant bearing three spikes, which has been in bloom for six weeks. The others are three Paphiopedilums of unknown parentage, but the best is clearly a hybrid of P. Stonei, while the spotted dorsal sepal and green leaves indicate something containing P. insigne, possibly × Leeanum, which would make it a form of P. × Harveyanum. Another may be a form of P. × Paulii, as it seems to combine the characters of P. × Harrisianum and P. × selligerum, while the third looks like a hybrid of Rothschildianum, though we cannot suggest the second parent. There are too many hybrids without either name or record of parentage. Fine flowers of P. × Gowerianum and var. magnificum are also sent, with a richly-coloured P. × selligerum majus, and a bloom of Cattleya granulosa.

A pretty rose-purple Læliocattleya is sent from the collection of

E. F. Clark, Esq., Chamonix, Teignmouth, which Mr. Clark states is from a cross made a few years ago from Cattleya Gaskelliana × Lælia × Iona. It is about intermediate in size and shape, and has rose-purple sepals and petals, and a dark purple lip, without any yellow in the throat, in which respect it most resembles the pollen parent. It flowers from the young growth without a sheath, like the hybrids of Lælia pumila and L. Dayana, a character which Mr. Clark has noticed as extending to the second generation where these parents are only represented to the amount of one-fourth. One other hybrid is recorded from Lælia Iona, namely, Lælio-cattleya Lucasii, of which Cattleya Warscewiczii was the other parent.

A good flower of Paphiopedilum × tonso-superbiens is sent from the collection of R. Gallsworthy, Esq., of Harrogate. It is of good shape, and has a broadly ovate, white dorsal sepal, closely veined with green, while the petals are broad and flat, ciliate, and about half as much spotted as in P. superbiens, but with rather larger spots. It was purchased as "tonsum × Veitchii," hence must be referred to the above.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during October, on the 12th and 26th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

The Manchester and North of England Orchid Society will hold meetings at the Coal Exchange, Manchester, on October 7th and 21st. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 p.m. The following meeting is fixed for November 4th.

Messrs. Moore, Ltd., Orchid Importers, Rawdon, Yorks, announce that on and after October 1st, 1909, the name of their firm will be changed to that of the Principals who have controlled the business for the past few years, namely, Messrs. Mansell & Hatcher, Ltd.

The Report of the R.H.S. Scientific Committee for August 31st contains the following Orchid notes:—

Cypripedium tibeticum.—This is one of the commonest herbaceous plants in open places at an altitude of 11,500 to 12,000 feet. A photograph was shown in an interesting series of Chinese photographs by Mr. E. H. Wilson.

Malformed Cypripedium.—Mr. R. W. Rickards, of Usk Priory, sent a flower of Cypripedium insigne in which the two lateral petals had a slight tendency towards the form of the lip, and the bract was green and leathery instead of membranous.

ORCHID PORTRAITS.

ANGRÆCUM KOTSCHYI.—*Gard. Chron.*, 1909, ii. pp. 206, 221, fig. 94.

CIRRHOPETALUM PULCHRUM.—*Journ. Hort.*, 1909, ii. p. 219, with fig.

CYPRIPEDIUM ACAULE.—*Gard. Chron.*, 1909, p. 209, fig. 87.

CYPRIPEDIUM × A. DE LAIRESSE.—*Gard. Mag.*, 1909, pp. 706, 707, with fig.

CYPRIPEDIUM CALCEOLUS.—*Gard. Chron.*, 1909, ii. p. 210,fig. 88.

CYPRIPEDIUM CALIFORNICUM.—*Gard. Chron.*, 1909, ii. p. 211, fig. 89.

CYPRIPEDIUM MACRANTHUM.—*Gard. Chron.*, 1909, ii. p. 212, fig. 90.

DENDROBIUM ACUMINATUM.—*Journ. Hort.*, 1909, ii. p. 291, with fig.

DISA × LUNA.—*Journ. Hort.*, 1909, ii. p. 267, with fig.

LÆLIOCATTLEYA × GOLDEN ORIOLE, WESTONBIRT VAR.—*Journ. Hort.*, 1909, ii. p. 315, with fig.

MEGACLINIUM PURPUREORACHIS, Wildem.—*Bot. Mag.*, t. 8273.

ODONTOGLOSSUM × GOODSONI.—*Journ. Hort.*, 1909, ii. p. 243, with fig.

ODONTOGLOSSUM PERCULTUM.—*Gard. Chron.*, 1909, ii. p. 197, fig. 76.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired* (*abroad, reply postcards should be used*). *Subjects of special interest will be dealt with in the body of the work*].

G. P.—The disease on Dendrobium Wardianum and thyrsiflorum sent is the well-known "spot," which is generally believed to be caused by too much moisture with a falling temperature. Drip from the roof in cold weather is a fruitful source of spot, which may be the cause in your case, for in the leaves of D. thyrsiflorum the injury is in some cases confined to the upper surface, and your treatment seems correct. We cannot find any trace of a parasitic fungus. The injury is of course done before any discolouration appears. It is curious that the spot has not appeared in former years.

T. Y.—The Formosan Dendrobium sent belongs to the section Strongyle, but is not yet identified.

O. N. W.—Cirrhæa dependens, Rchb. f.

B.—We regret that we cannot name hybrids of which no clue to the parentage is given, though, of course, some of the common kinds can often be recognised. In the case of plants sent for determination a brief statement of the history should always be given.

E. M.—3. Acineta chrysantha,, Lindl. 4. Catasetum tabulare Lindl. 5. Epidendrum variegatum, Hook.

W. S., J. G., and several others.—Unavoidably postponed till next month.

Photographs received with thanks.—E. M., H. S. G., H. J. C.

Catalogue received.—We have received the Special Sale Catalogue of Orchids of Messrs. Mansell and Hatcher, Ltd., Rawdon, Yorks, containing a fine selection of Orchid species and hybrids.

STANLEY & CO.,

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THE ORCHID REVIEW:

An Illustrated Journal of Orchidology

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SOPHRONITIS GRANDIFLORA AS A PARENT.

By J. M. BLACK.

On glancing over the field covered by intercrossing the genus Cattleya with its near allies, Lælia, Brassavola, Epidendrum and Sophronitis, and the hybrid genera formed, namely Brassocattleya, Epicattleya, &c., the supreme importance of the genus Sophronitis will be at once apparent. If one runs the mind over all the known species of Cattleya and Lælia—by far the most important genera florally—one cannot help being struck with the uniformity of colour, or the blending of tint, that one finds. With the exception of the smaller-flowered Lælias, such as cinnabarina, flava and harpophylla, which are more or less self-coloured flowers of different shades of yellow, nearly all the Cattleyas and Lælias give various shades of rose, purple, magenta and yellow, but no scarlet; and if one is a hybridist of lengthy experience and with some ambition, the material to hand in these two genera, with the Brassavolas thrown in, will seem hardly sufficient in view of the fact that nearly all the primary combinations possible have already been made, and sufficient ground has been covered with combinations of these first crosses to indicate certain limitations with them.

If one combines a desire for new hybrids with the intention that they shall be not only new and beautiful, but have a character of their own and a utilitarian value—as distinct from mere freak hybrids—then the scarlet Sophronitis grandiflora loudly commends itself. Of all the long list of Cattleya and Lælia hybrids the best, taken collectively, are those which have been derived from C. Dowiana, whether primarily or secondarily, as witness Brassocattleya Leemanniæ, C. × Hardyana, C. × Raphaeliæ, C. × Octavia, Sophrocattleya Doris, S.-c. Blackii, and the wonderful Sophrocatlælia Marathon var. Vesuvius, to mention a few that occur quickly to the mind. These hybrids are generally distinct, and convey immediately the imprint of the C. Dowiana. That there is a wide field and abundant scope to keep on improving by selecting existing hybrids for judicious crossing together is very evident, and it is along these lines that hybridists must now work, achieving no doubt in future years very wonderful and unlooked-for results, and in Sophronitis grandiflora we have a factor which offers infinite

possibilities to the Cattleya hybridist. It is impossible to overrate the importance of C. Dowiana and S. grandiflora, for the latter, although not large, has a new and intense colour, and the shape is good.

This sounds as though S. grandiflora had been but recently discovered and had never been attempted by the hybridist, but although Sophronitis has always been available, and the first hybrid from it, namely Sophrocattleya Batemaniana, appeared in 1886, it has perhaps never yet been generally taken in hand. True, a few have taken it up, and worked pretty hard at it, but it has not been work that has given a generous return

Fig. 24. SOPHROCATTLEYA THWAITESII.
(Sepals and petals carmine red ; lip rich, soft yellow, with bright red margins and apex)

as far as quantity is concerned, and some have turned aside from it disheartened at the small return, to follow up other lines that yielded a fuller harvest.

There are, however, now some forty-eight hybrids having Sophronitis grandiflora in some proportion in their composition, quite sufficient, one would say, to make their influence felt and give data galore upon which to appraise their possibilities in the future. I have made a list of all the existing flowered Sophronitis hybrids, and at first sight, and taken in the aggregate, the result, or effect, is undeniably disappointing, but there are

two or three such glorious exceptions that one becomes quite reconciled, and a further and careful analysis explains why, *in the aggregate*, they are disappointing.

I shall come back presently to that list, and will, in the meantime, set forth the reasons, as they appear to me, why it is not more prepossessing. Sophronitis has, in comparison to any Cattleya of the labiata group—the group which contains the largest and best flowers—a small flower, and relatively a small column. Therefore the same hypothesis which applies to Brassavola Digbyana as a seed-bearer applies here—the pollen tubes of the

Fig. 25. SOPHROCATTLEYA DORIS.
(Sepals and petals cardinal red, shaded with a bloom of plum blue ; lip veined with yellow.)

smaller flowers fail to reach the ovary of the larger one, or succeed in reaching those ovules only which are immediately at the base of the column. My own experience is that a large percentage of the pods of these Cattleyas come off quite empty or contain no fertile seed. The consequence is that the operator in these cases is thrown back upon the Sophronitis itself as the seed-bearer, and all who have handled this seed will agree with me that it is so small, of such poor quality and so uncertain that an infinitude of

patience and care must be applied in manipulating it; and if to these two virtuous assets an illusive and phantom-like intervention known as good luck lends its assistance a few seedlings may be the result, which will, in a year or two, be large enough to count.

On the other hand, Cattleyas of the long-bulbed group, with their smaller (and poorer) flowers and shorter columns, lend themselves more readily to be seed-bearers, both when crossed with the pollen of Sophronitis pure or when used with the pollen of a secondary Sophronitis hybrid, for these latter are only one degree removed from the Sophronitis in their intractability as seed-bearers. The result is that while Sophrocattleyas having for parents C. Bowringiana, Harrisoniana, intermedia, Leopoldi, Loddigesii, and amethystoglossa are fairly well known, and have been for some years catalogued, such later productions, of a vastly different caste, as the Sophrocattleyas having Dowiana, Mendelii, or × Hardyana for the other parent are comparatively little known and have hardly yet acquired the *renommée* that their great beauty, their rarity and their infinite possibilities as future parents warrant. Sophrocattleya Imperatrix (C. Mossiæ ♀ × S. grandiflora ♂) must be included among the latter. This appeared as long ago as 1899, raised by Messrs. Veitch, and found its way into the collection of Baron Sir H. Schröder, the Dell, Egham. It was the only seedling raised, and remains still a perfectly unique plant.

Among Sophrolælias we find some dearth of really fine things—fine in the sense that one would expect from Sophronitis grandiflora. All, however, are charming flowers, and particularly fine when well grown are S.-l. Orpetiana, S.-l. heatonensis and S.-l. Gratrixiæ.

Among the secondary Sophronitis hybrids, *i.e.*, where a Sophronitis hybrid has been used as one of the parents, I find that out of the thirteen existing Sophrocatlælias, one or other of the Sophrolælias has been used ten times, and a Sophrocattleya only three (and these long-bulbed Cattleya crosses), so that there is a predominance throughout of Lælia and the long-bulbed section of Cattleya. The most successful among these secondary hybrids is Sophrocatlælia Marathon, already mentioned, the variety Vesuvius being one of the most lovely of the whole group. It stands out as an inspiration for further and repeated effort. This hybrid is between S.-l. Psyche and C. × Frederickiæ, and contains consequently equal parts of L. cinnabarina, S. grandiflora, C. Mossiæ and C. Dowiana. This I consider one of Mr. Charlesworth's most notable triumphs. It will be quite unnecessary for me to go further into the secondaries, as I am appending, as far as I know, a complete list of them, and students will see at a glance what has so far been produced. I am indebted to the catalogue of Messrs. Charlesworth for a few names that I have failed to find elsewhere, and to this firm is due the credit of having largely enriched this group by their many fine

productions. It once occurred to me to give a detailed list of all the raisers, but second thoughts convinced me that this was quite unnecessary with the *Orchid Stud-Book* to hand, and in anticipation of future supplements with careful records, but I would like to pay a tribute to Wilson Potter, Esq. (and his erstwhile gardener, Mr. W. H. Young), whose collection was dispersed a year or two ago. Mr. Potter was keenly interested in this section, and spent some ten years at Elmwood, Park Road, Croydon, persevering with Sophronitis seedlings, and at his sale a good number were scattered among different collections. S. grandiflora × C. × Whiteleyæ and S. g. × C. Percivaliana were two of the best, and they will be both new and, I prophesy, very fine.

We may safely leave the results to speak for those who are still actively engaged in the work.

(*To be concluded.*)

THE LYTHAM HALL COLLECTION.

RARELY has it been our pleasure to visit a collection of Orchids that has come so rapidly to the fore as this extremely interesting one, situated on the Lancashire coast and formed by the intrepid traveller and explorer, J. Talbot Clifton, Esq. Most of the Orchid collections round Manchester, and the other busy manufacturing centres of Lancashire, are well known to the majority of enthusiasts in this country, either from personal visits or through the medium of gardening literature. These may be termed "speciality" collections, the owners generally confining their tastes and pockets to one or two of the popular genera, such as Cypripedium, Odontoglossum and the Cattleya family.

At Lytham Hall one's attention is drawn to the fact that the owner enjoys a very catholic taste, for the less showy and often diminutive and insignificant kinds receive quite as much attention and appreciation as the more stately species. And an enthusiast may here linger over and admire —providing he remembered to bring his pocket microscope with him— many of the intensely beautiful little gems of the Orchid world.

Mr. Clifton is a gentleman of widely-travelled experience in almost every corner of the civilised world, and has hunted big game in Russia, Siberia and the Rockies. He lived six months with Esquimaux in order to secure a specimen of the extremely rare Musk Ox (Ovis Cliftonii), which he very generously and patriotically presented to the British Museum, and is known now as "Clifton's Big Horn," from the valley of the Lena. And many other splendid trophies he has brought and added to a very interesting private museum at Lytham Hall. In his wanderings in Manchuria he kindly undertook the duties of war correspondent to one of the London

dailies during the Russo-Japanese War, which his knowledge of the two languages specially qualified him for.

To a gentleman who has experienced an adventurous and exciting life such as this, we should think that the pleasure derived from his latest hobby must come as a splendid relaxation, and one which very few are qualified to enjoy to the same degree; and it is not surprising that when Mr. Clifton decided to make a collection of Orchids he should have put into it some of the energy which has made his reputation as a big game hunter.

In the early spring of this year he started on an Orchid-hunting expedition in the East, accompanied by Mrs. Clifton, who is a very keen Orchidist. They visited Burma, Ceylon, the Philippines and Andaman Isles, Java and other places, managing to secure many rare and interesting plants, which were either sent or brought home by themselves.

To find accommodation and to give the correct treatment for the successful cultivation of the great number of species got together at Lytham Hall, it has been found necessary to remodel many of the old glass structures. This has been done most thoroughly; also new houses have been added from the best designs procurable from sources of experience; in fact, no expense has been spared to provide suitable accommodation for the requirements of each important section.

One of the first houses which Mr. Clifton is naturally proud to take his visitors into contains many of the rare and botanical specimens which he has collected himself. Here we noticed a magnificent mass of Vanda Roxburghii, which should delight the eye of its fortunate possessor when it flowers, and grand specimens of Angræcum sesquipedale showing a great profusion of flower spikes.

The rare Vanda Dearei is in fine health, and we saw a nice plant of Aërides Micholitzii, a fine healthy piece of the albino variety of Vanda suavis, and the chaste Saccolabium violaceum Harrisonianum in flower. Grammatophyllum scriptum is said to be the only plant in cultivation. There were also Eriopsis biloba, Sarcochilus Calceolus, a good plant of Eulophiella Elizabethæ, some well-grown Catasetums, including C. Brandtiæ, C. fimbriatum in flower, C. gnomus, and C. × splendens Lindenii. The assortment of Angræcums is specially large, including such rare ones as A. Rothschildianum, A. caffrum, A. Kotschyanum, A. caudatum, A. Buyssoni, A. Eichlerianum, and another species which has not yet been identified and promises to be quite new. Mormodes pardinum was noticed to be doing exceptionally well, as also were several species of Aërides, such as A. maculosum, roseum, crispum, &c.

In another division were to be found growing equally well many of the Cœlogynes, including such rare ones as C. Mayeriana, C. Rhodeana, C. Rochussenii, C. Veitchii in flower, and some other recently imported species.

In another house our notice was drawn to a very complete collection of Dendrobiums, about 140 species and varieties, which Mr. Clifton sent home himself from the East. Here also we noticed many varieties of Bulbophyllum, Cirrhopetalum, Bollea, Pescatorea, Stanhopea, Xylobium leontoglossum, &c., &c., doing well, and a good plant of Cynorchis × kewensis in flower.

The Cattleya and Læliocattleya hybrids are recognized as extremely useful plants for giving a continuous display of flowers throughout the year. In the house set apart for these we noticed C. × Mantinii in flower; also several distinct varieties of C. × Iris and C. × Maroni, Læliocattleya Gottoiana, and the gorgeous Brassocattleya Leemanniæ. And the species are not neglected, for we found good and well-grown plants of many of the albinos, such as C. Mossiæ Wageneri, C. M. Reineckeana, C. Gaskelliana alba, C. intermedia alba, and others.

Odontoglossums are well represented in another house, the decorative and showy hybrids of recent introduction finding most favour, although several hundreds of a good type of O. crispum were doing equally well and showing many strong flower spikes. Of the plants in flower here the most conspicuous were O. × Phœbe, O. × loochristiense, a very distinct variety, O. × Hallio-crispum, O. × warnhamiense, O. × ardentissimum, and O. × Rolfeæ. Disa polygonoides was showing a very strong flower spike, and fine plants of D. grandiflora giving evidence of having flowered well.

In another cool division a very complete collection of Masdevallias is staged and is doing remarkably well. Here we found the curious Pleurothallis astrophora in flower, and the bright purple-flowered Oncidium Retemeyerianum. Lycastes were well represented, many of the choicer species and hybrids being included, such as L. × Tunstillii, L. trifoliata, L. × Balliæ, &c., as well as fine selected varieties of L. Skinneri. Cymbidiums were also looking happy, and one immense specimen of C. Lowianum should present a fine spectacle when in flower next spring. Scaphosepalum anchoriferum was here in flower with its curious little flowers disposed upside-down on the spike.

In another house, separated from the main block, which we were informed had formerly been used for melon growing, but with a very few alterations, was found to be exactly suited for the cultivation of Phalænopsis, we found what must be called a feature of the Lytham Hall collection. Most of the species of this interesting genus are represented, and they are certainly a wonderful lot of plants, in perfect condition and growing as luxuriantly, we venture to think, as any that Mr. Clifton has had the pleasure of seeing in their native habitats. We had pointed out to us a small consignment of P. amabilis which the owner brought home with him. These have been established in pans, and in many instances had strong flower spikes, already

well advanced, though only six weeks have elapsed since they arrived in England; proof sufficient that the house will suit Phalænopsis, we think! Among the choicer species and varieties are good pieces of P. × casta, P. × intermedia Portei, P. gloriosa, P. fasciata, P. sumatrana, the "Coundon Court" variety of P. Sanderiana, P. amabilis, Kinleside's variety, &c. In the same house we noticed Bulbophyllum virescens doing well; also the wonderfully pretty Cirrhopetalum pulchrum var. Cliftoni, which

Fig. 26. CIRRHOPETALUM PULCHRUM VAR. CLIFTONI.

received a First-class Certificate at the Horticultural Hall a few weeks ago.

From such a choice and interesting collection of plants, many of which considerations of space prevent us noting here, it is not surprising to find it possible for Mr. Clifton to send the remarkably fine groups which his able gardener, Mr. J. Float, has staged at the fortnightly meetings of the Manchester and North of England Orchid Society of late, and greater things may be expected in the future.

QUERCUS.

THE AMATEUR'S COLLECTION.

THE question what to grow will depend very largely upon the accommodation at hand, and the price one is prepared to pay. Importations of the ever-popular Odontoglossum crispum and other species are frequently arriving, and are obtainable at a cheap rate, and with proper care soon establish themselves. The flowering of a batch of imported O. crispum is always an interesting matter, for no one can tell what surprises are in store. A few natural hybrids usually appear, and occasionally examples of the choice blotched varieties of O. crispum which are so highly prized. Even the white and rosy forms vary considerably, and material for selection is immediately available. Examples of O. Pescatorei, triumphans, luteo-purpureum, Hallii, cirrhosum, Harryanum, Edwardii and a few others should also be included, with a few of the Mexican species, as O. Rossii. Cervantesii, maculatum, &c., the smaller being suitable for growing in hanging pans. The brilliant Cochlioda Nœtzliana, C. vulcanica and Ada aurantiaca should also be included, and opportunities often occur for adding a few other species and some of the garden hybrids which are now becoming common. There is abundant material to select from.

Of the Cypripedes a wealth of material is available, and the popular C. insigne and its hybrids are amongst the very best of autumn-flowering plants, and very easy to grow. C. insigne is very variable, and among importations made during recent years numerous handsomely-blotched forms have appeared, as well as several yellow varieties. Imported plants soon establish themselves, and afterwards may be relied upon to flower annually. C. × Leeanum, × nitens, × Arthurianum and other of its hybrids are equally floriferous and will form the nucleus of a very useful collection.

Dendrobium nobile, D. Wardianum and other species can be obtained as imported plants at the proper season, also various species of Cattleya and Lælia, while flowered and unflowered hybrids are abundant and cheap. Numerous other things can be obtained as established or semi-established plants. The beautiful Cœlogyne cristata and its varieties are also easily obtainable, so that there is ample material to select from. The rarer and more expensive varieties may be added as circumstances permit, and when experience has been gained in growing the common kinds.

The Intermediate house is still the gayest of the three divisions, and the fine old Cattleya labiata has already commenced its annual display, also the well-known autumn-flowering C. Bowringiana, while the hybrids raised from them are both numerous and very beautiful, especially those in which C. Dowiana aurea is concerned. Lælia Perrinii is also flowering well, and this is a species from which several very beautiful hybrids have been derived. Lælia autumnalis and L. anceps are producing fine spikes,

and can usually be relied on to make a good display, though in urban districts the flowers are sometimes much injured by fogs. Oncidium crispum and others of this section are flowering well, and some of those mentioned last month are still good. The genus includes some fine autumn-flowering species. Cypripedes are pushing up numerous sturdy scapes, both here and in the Cool house, and a few are already in bloom, prominent among them being the dainty C. Fairrieanum, which is now making a good show. It grows and flowers freely in this house, and it becomes increasingly difficult to understand why the original importations should have so nearly died out. C. purpuratum is also flowering well. Vanda Kimballiana and V. cœrulea are making a fine display, while Sophronitis grandiflora is also flowering freely, and is quite indispensable.

In the Cool house a few Odontoglossums are in bloom, but the majority are now growing and rooting freely. They should be encouraged as much as possible, for strong growths will produce strong spikes later on. A moist genial atmosphere, with plenty of light and air, should be secured, though cold draughts must be avoided, as well as anything like a hot dry atmosphere. The cool-growing Cypripedes, as C. insigne and its varieties and hybrids will soon be in bloom, and will keep up a supply of flowers for weeks.

In the Warm house, plants of the striking and very fragrant Cycnoches chlorochilon are flowering well, with Vanda suavis, the beautiful Dendrobium Phalænopsis and formosum, and some of the warm-growing Cypripedes, but the show of bloom in this house is not great just now.

Winter treatment will now be the order of the day, and the great thing will be to keep the temperatures and atmospheres right. There are a few Cool house species which thrive best in intermediate temperature during the winter, as the Chimæra section of Masdevallia, and if not already done these should now be moved to the Intermediate house. Other species which are actively growing during the winter are often benefited by being removed to a slightly warmer house. Great care must be exercised in watering during the winter months, for evaporation is now reduced to a minimum, and the compost takes a long time to dry out.

SMALL ORCHID HOUSES.—We have received a very interesting letter from a "Constant Subscriber" in Lancashire, respecting a note on small Orchid houses which appeared at page 168. He remarks: "I have two small houses, one 16 by 8 by 8 ft., which I made myself throughout, and which will bear inspection, although I have never had an hour's lesson from anyone. The other is 7 by 8 by 8 ft., which I bought, but I have made a new top in sections. I also fitted the boiler and pipes for heating, and the lath blinds for shading. These two houses contain about 350 Orchids of a mixed collection." The letter concludes with a cordial invitation to inspect the

collection when next we are in the district. We hope to see it some day. Meantime we thank our correspondent for his remarks as to the value of the *Review*, and are very glad that he finds it so useful.

CALENDAR OF OPERATIONS FOR NOVEMBER.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

CYPRIPEDIUMS will be making a fine show during this month, and if the flowers are well cared for will continue good far into December. Where a house cannot be set apart for them while they are in bloom, the houses in which they are placed should be kept slightly drier, or the flowers soon go thin, and the more delicate will soon spot. It is worth the trouble to stage the plants which are in bloom by themselves in a separate house, leaving those that are growing in a house by themselves. Cypripediums do not appeal to everyone, when seen flowering in the growing houses dotted about singly, but when they are massed and nicely staged with ferns and other foliage plants the endless variety is wonderful, and the varieties can be more easily distinguished. It is also much easier to compare varieties than when they are scattered about the houses. Cypripediums, unlike most Orchids, must not be dried off when in bloom. Watering must still be carefully attended to, and a plant should never be allowed to get dust dry, or it will soon get into a poor state, and will take a lot of pulling round again. When the leaves are allowed to shrivel thrip will soon make headway, and if not checked will spoil the whole of the young leaves. Where a house is used for flowering they can all be kept at a temperature of 55° at night, and 60° as a day average, provided of course that the house is not too heavily charged with moisture. The house should be ventilated on every favourable day. These temperatures will also suit Cattleyas, Odontoglossums, Oncidiums, &c., when in flower, and the flowers will last much longer.

DENDROBIUMS of practically all the spring flowering section will now have finished their growths, and will need very careful watering until they are again in their growing quarters. D. aureum and its hybrids will be pushing their buds up, but should still be kept in the Cool house until the buds are well advanced. Then they can be put in a warmer house if wanted for early flowering. If they are placed in strong heat before the buds are well advanced, these will in most cases turn yellow and drop, and the plant will go into growth. D. nobile, D. Wardianum and their hybrids should be kept as dry as possible without shrivelling the bulbs, to prevent them from starting into growth. D. thyrsiflorum and densiflorum should also be given similar treatment. Keep the glass clean to let them have as much light as possible, and ventilate whenever the outside conditions will allow. These should be given a temperature of 55° at night and 60° by day. A

good syringing on a nice day will do a lot more good than watering them too often at the roots, and the house will soon dry again if a nice day is chosen when the ventilators can be used. D. Dalhousieanum, fimbriatum, Gibsoni and others of this section must not be given lower than Cattleya house temperature if good results are to be obtained. These are better given stove treatment until they have finished growing, when they can be removed to the Cattleya house or a similar temperature.

DENDROBIUM DEAREI which was imported in the spring and potted up should now be making fine growths. Those which were potted in very small pots and have overgrown them should be shifted into larger pots as soon as they make new roots. A mixture of Osmunda fibre and leaves should be used, with plenty of crushed crocks to keep it porous, as this species likes plenty of water during its growing season. When the plants are strong they are almost always in bloom, and, like all white flowers, are always admired, and are very useful for buttonholes. Many of the imported bulbs will push flower spikes. These species should be given warm treatment, and not too much sun. The shady end of the Stove seems to suit them better than a more sunny position.

DENDROBIUM PHALÆNOPSIS and D. FORMOSUM, as they finish flowering, can be given a slightly lower temperature. A sunny position in the Cattleya house suits them during the winter, and only sufficient water should be given to keep the bulbs plump. D. Jamesianum and infundibulum are two very beautiful species which often receive Cool house treatment, but I find that they do much better in a temperature of 60° as an average, both during their growing and resting season, with plenty of sun at all times. They then make fine growths, and I find that the leaves do not spot. Do not overpot them, as they are small rooting varieties. They are irregular in blooming, and when the plants are strong, their season of flowering is often extended over several months. The flowers are large, and make a fine show, as the plants are evergreen and the flowers look well against the dark green foliage. They should not be dried quite so much as the D. nobile section, as if the bulbs are allowed to shrivel much they soon get into bad health.

CATTLEYAS and LÆLIAS.—The species will nearly all have finished their growths, and must be very carefully watered for some time. Do not water a plant unless it really wants it; then give it a good watering. Do not be tempted when going through the plants to water half dry plants; if they are looked over for water twice a week now it will be sufficient, and the temptation of watering half-dry plants will not be so great. If they are not dry leave them until the next watering, and they will take no harm; in fact, it will rather benefit them. A Cattleya or Lælia which is kept on the dry side after it has completed its growth will make many more roots than

a plant which is never given a chance to become dry, and roots in Cattleyas mean healthy plants and fine flowers. The plants should be looked over occasionally for scale, which must be carefully sponged off or it will soon turn the bulbs and leaves yellow. If they are sprayed occasionally with insecticide it will prevent a lot of it, but the plants want looking over as well several times during the winter to keep them thoroughly clean. It is most important in Cattleya growing to keep them clean, and the glass should be washed whenever it gets at all dirty, both inside and out, to give them all the light possible during the winter months. The stages and surroundings should also be kept clean, as it helps to keep away woodlice, slugs, cockroaches, &c., which are great pests in a Cattleya house.

LÆLIOCATTLEYAS, &C.—The hybrids are not so difficult to manage as the species, being much more robust and not so fickle under general treatment. Where a number of these are grown, and some are active and others resting, they should be sorted out, and the growing plants placed at the warmest end of the house. These, of course, will need an ample supply of water until their growths are finished, while those which have made up their growths can be kept on the dry side until they commence to push up their buds, when the supply must be increased slightly, or the flowers will not develop properly. With the numerous varieties which are now in cultivation, flowers can be had all the year round if a careful selection is made. They are very fine for grouping, and much freer flowering than the species. The long-stemmed varieties are very useful for cutting, and there is an endless variety of colours amongst them. Like the species, these are subject to scale, and should be looked over occasionally to keep them clean and in perfect health. Amongst the hybrids no fixed rule can be given for potting, as they are growing and resting at all seasons. Plants should be potted only when the roots are active, and not overpotted at any time. A mixture of Osmunda fibre, with a few leaves mixed in, and plenty of crushed crocks, should be used. Pot firmly, keeping the plants just below the rim of the pot. When plants are potted in the winter time they must be carefully watered, and if the compost is damp when used they will go for some time without watering, if they are syringed overhead on every favourable occasion, and this will keep the bulbs from shrivelling without souring the compost. Always stage newly potted plants in a batch by themselves, and then no mistakes occur in watering.

VANDA CŒRULEA.—As the plants finish flowering they will do well staged with the warmer Dendrobes in the Cattleya house, where they may remain during the winter. They will need very little water during the winter, just enough to prevent the leaves from shrivelling will suffice. They are rather difficult plants to handle, and a suitable corner has to be found for them for successful culture. Frequently the most unlikely place is just

the place they will thrive in. Generally speaking they like a dry treatment, with good ventilation. They are very beautiful when in flower, and well worth a little extra care in growing.

EPIDENDRUM VITELLINUM AUTUMNALIS will now be in full bloom, and the flowers are very showy and last a long time in perfection, either on the plants or cut. After they have finished flowering they should be kept rather drier until they commence to grow again. A batch of these will make a fine show in the dull months, and if staged with the white Lælia anceps, one helps to show the other off. They are very little trouble to grow, and take up very little room. Intermediate temperature suits them best, although they are catalogued as cool Orchids. A mixture of Osmunda fibre and leaves suits them as a potting compost, and plenty of water is needed while they are in full growth.

DAMPING and WATERING must be very carefully done during this month, especially in foggy weather. During a fog it is best, if possible, to move all flowers into one house. The houses can be damped whenever they are dry, as it does no harm to the plants, and is far better than keeping a fiery temperature and breeding thrip. If the house is kept moderately dry, the flowers will keep fairly well. Do not raise the temperature, as I find this does far more harm than the fogs. Many growers advise not to water anything while a fog lasts, but as long as the temperatures are kept regular the plants should not be allowed to suffer for want of water or moisture in the houses. It is a most drastic treatment for the soft-growing varieties, such as Cypripediums, Miltonias, &c., for often a fog will last a fortnight. Keep the fires right, and there will be very little harm done to the plants, but the flowers will suffer more or less according to the density and length of the fog.

BLINDS will be a great help in keeping up the temperature, if they are run out every night and rolled up in the morning as soon as it is light. They keep the temperatures steady and save fuel.

TEMPERATURES should run about the same as advised in last month's Calendar. Keeping them as regular as possible is the principal thing to consider.

ODONTOGLOSSUM DISTANS.

AN Odontoglossum exhibited at the R.H.S. meeting held on September 28th proves to be O. distans, Rchb. f., a species of the section Myanthum, which has apparently not previously appeared in cultivation. The species was described in 1849 (*Linnæa*, xxii. p. 848) from a dried specimen collected in September, 1846, in the province of Merida, Venezuela, at 6,000 feet elevation, by Messrs. Funck and Schlim (n. 1031), and is recorded as having whitish flowers with a rose-coloured lip, It was afterwards collected at Aspasica in the province of Ocana, at about 4,900 feet elevation, by Schlim.

Messrs. Low's plant is supposed to have come home with Oncidium macranthum, but agrees so well with O. distans, including the details of the lip and column, that I think it must be referred to it. It bears a considerable resemblance to Oncidium macranthum in habit, but has an upright, loosely branched panicle measuring ¾-inch across, with narrow, light greenish-yellow sepals and petals, and a tinge of rose on and in front of the lip's crest. The crest consists of a pair of erect, somewhat bilobed calli. Like many species of the Myanthum set, it cannot be called showy. R. A. R.

CIRRHOPETALUM ORNATISSIMUM AND C. MANNII.

WHAT is Cirrhopetalum Mannii? Mr. F. W. Moore, Keeper of the Royal Botanic Garden, Glasnevin, has sent to Kew on two or three occasions flowers of two closely allied and handsome Cirrhopetalums, under the names of C. ornatissimum and C. Mannii, and remarked on their distinctness, though in the *Botanical Magazine* they had been considered identical, and the latter was regarded as not representing Reichenbach's plant.

The latter was described in 1872 under the name of Bulbophyllum (Cirrhopetalum) Mannii, Rchb. f. (*Flora*, 1872, p. 275), as a highly interesting species collected in Assam by Gustav Mann. No affinity was given. In 1890 a plant was figured in the *Botanical Magazine* (t. 7229) under the name of Cirrhopetalum ornatissimum, Rchb. f., which is said to have been "received at Kew from the Royal Botanical Gardens of Calcutta in 1890 (under the erroneous name of Bulbophyllum Mannii)." This is the plant cultivated at Glasnevin as C. Mannii, and the question arises whether the name is not correct. Reichenbach describes the dorsal sepal as aristate, and the petals as aristate from the middle. The latter phrase is meaningless, but if he meant furnished with appendages in each case the description would agree very well. The type specimen is of course locked up for five years longer, so the point must remain doubtful.

C. ornatissimum, Rchb. f., was described ten years later (*Gard. Chron.*, 1882, ii. p. 424) as having flowered in four different collections, though it was first sent by Mr. W. Bull in October, 1879. The author remarked: "It may come from East India, though I am not sure of it." On September 19th, 1882, it was drawn by Mr. Day (*Orch. Draw.*, xxxi. t. 15), and it is recorded as "Drawn at Mr. Wm. Bull's Nursery, Chelsea. The plant was received from the Philippine Islands. It is a charming thing, well deserving of its name." In 1889 it was figured in the *Orchid Album* (viii. t. 369), from the collection of F. G. Tautz, Esq., Studley House, Shepherds Bush. In the *Flora of British India* the locality is given as "Sikkim Himalaya (Ic. in Herb. Calcutt.), Assam, Griffith," but the former belongs to C. appendiculatum, Rolfe, and the latter agrees best with the plant figured in the *Botanical Magazine*. On the other hand nothing like C.

ornatissimum has appeared among the recent importations from the Philippines. The difference in colour and in the shape of the leaf are very well shown in the figures cited, but whether both are forms of a single species remains uncertain. The identity of the original Bulbophyllum (Cirrhopetalum) Mannii, and the real habitat of C. ornatissimum also remain doubtful. It would be interesting if any reader can throw further light on the matter. R. A. R.

THE PRODUCTION OF HORTICULTURAL VARIETIES.

THIS was the title of the second "Masters" Memorial Lecture, delivered by Professor Hugo de Vries at the R.H.S. meeting held on September 28th, and although it contained no reference to Orchids, a few notes on the general principles involved should be of interest.

The Lecturer remarked that if the facts of variation supported the argument for evolution, which was now generally admitted, the process by which variations arose became, in all its details, a most interesting and important subject of enquiry, for the laws governing the process are the same in both cases, though the details may and probably do differ. In "fixing" varieties which arise in gardens, where numerous closely allied forms grow in proximity, one has to contend against the difficulty of cross-pollination, and especially so where the variations which it is desired to develop are only faintly indicated at first, as in the doubling of flowers or variegation of foliage. Only after careful selection do such variations become marked enough to make them worth cultivating as novelties.

There are two distinct types of variation with which the horticulturist has to deal, the "constant" and the "ever-sporting" variety, and the former Professor de Vries calls "mutants," because they arise suddenly and breed true to type when self-pollinated. Examples of mutants were furnished by white "sports" of many flowers, and by "dwarfed" varieties, in which cases the florist's work consisted solely in securing isolation. The occurrence and extent of variegation depends largely upon the method of cultivation, and the extent of doubling may vary enormously, even on the same plant and at different seasons of the year. Small indications of possibilities appear first, and the florist has to isolate them and work them up by constant selection.

The lecturer showed how variations had been produced under his own observation in plants whose history was known for many generations, and various examples were thrown upon the screen, among them being numerous examples of the genus Œnothera. He also showed many views of his experimental garden in Amsterdam, including the gauze cages under which the plants were cultivated so as to ensure the exclusion of insects likely to carry the pollen about. The lecture was followed by a short discussion.

ODONTOGLOSSUM × PERCULTUM.

THE annexed figure represents a very interesting and beautiful group of five seedling Odontoglossoms, raised in the collection of the late Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr. Mr. H. J. Chapman). The photograph was taken by Mr. Chapman, who kindly forwarded us a copy, and recorded its history as follows :—

"All were raised from the same pod of seeds, obtained by crossing O. × Rolfeæ Oakwood var. (Harryanum × Pescatorei) with the pollen of

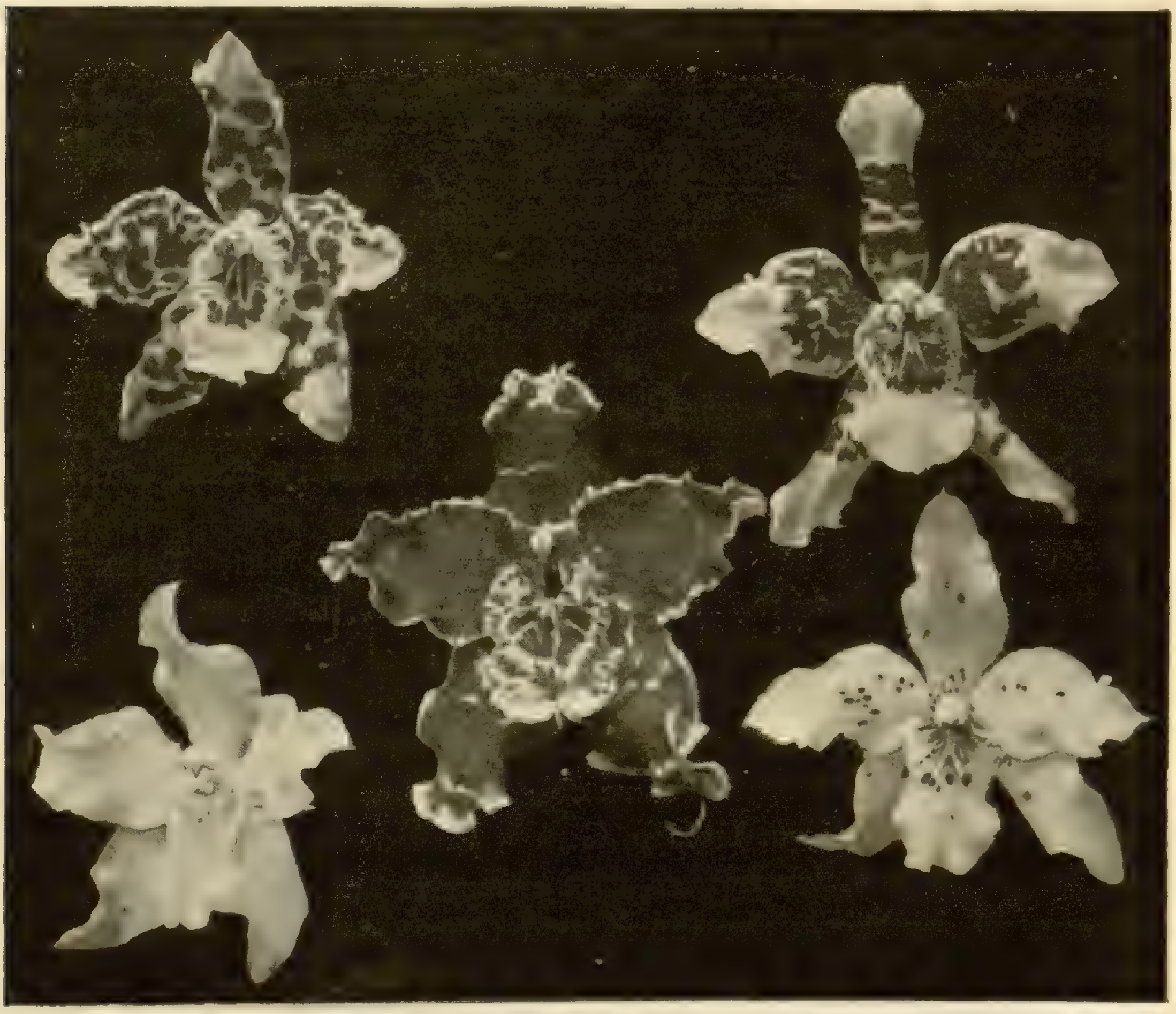

Fig. 27. ODONTOLOSSUM × PERCULTUM.

O. × ardentissimum Cooksonæ (crispum × Pescatorei). The offspring thus consist of one half O. Pescatorei and one fourth each O. crispum and O. Harryanum. There were a number of absolutely spotless forms, as seen in the lower left-hand corner of the illustration, and many others linking up the different steps, until O. × percultum Cookson's var., which is represented in the centre of the photograph, was obtained. The flowers of this variety have a peculiar shade of slaty or bluish purple." This variety received a First-class Certificate from the R.H.S. on April 6th last, as recorded at page 146. The above figure is very interesting, and gives a graphic

representation of the wide range of variation and the dissociation of specific character so often seen in secondary hybrids, and frequently commented upon. A few cases of this kind illustrate the difficulty of determining the parentage of natural hybrid Odontoglossums by a study and comparison of their characters, which is unfortunately the only method available. Who, for example, would have pronounced these five seedlings to have originated from a single capsule had they appeared in some importation ? We should much like to see a single flower of every seedling out of the batch. Of course all will not flower together, but it would be quite easy to dry a single flower of each in blotting paper, and report on them when the series is complete. An analysis of the result would certainly be interesting.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Royal Horticultural Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on September 28th last, when there was a very good display of Orchids, and the meeting was remarkable by the presence of female flowers of Cycnoches in two different collections. The awards were four medals, one First-class Certificate, three Awards of Merit, and one Botanical Certificate.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received a First-class Certificate for Læliocattleya Pizarro Holford's var. (L. Jongheana × C. Dowiana aurea), a magnificent variety, having very broad rose-purple sepals and petals, which are gracefully recurved, and a broad open copper-red lip, becoming more purple in front, and the throat rich brown with some obscure yellow veining. He also sent L.-c. Golden Fleece (L.-c. Golden Gem × C. Dowiana aurea), bearing a spike of seven deep yellow flowers, with bronzy red markings on the lip and some yellow veining in the throat, and Cypripedium × Actæus Bianca (Leeanum Prospero × insigne Sanderæ), a magnificent yellow flower, with the upper part of the dorsal sepal white.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a choice group containing Læliocattleya Ophir rosea, Cirrhopetalum appendiculatum, several well-flowered plants of the rose-coloured Dendrobium Phalænopsis, and its paler variety Schrœderianum, also the Gatton Park var., in which the flowers are nearly white, with slaty blue markings on the lip, the rare D. bicaudatum, a Javan species, having racemes of green flowers with some brown markings on the lip, a light form of D. taurinum, bearing several spikes of whitish flowers with a rose-purple lip, and the prettily-spotted Brassocattleya Mary.

De Barri Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent

Odontoglossum × McNabianum rosefieldiense, a fine form with yellow sepals and petals blotched with brown, and a white lip barred with purple-brown on the basal half, the influence of O. Harryanum being very marked in the latter organ.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent a small group of Cypripediums, including C. Fairrieanum with four flowers, a richly-coloured C. × Baron Schröder, C. × Thalia Mrs. Francis Wellesley and New Hall Hey var., C. × Ballantinei Westfield var., C. × Milo and the dark-coloured Cobb's variety, and C. × Tityus superbum.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent a good plant of Cypripedium × Chapmanii superbum.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent the fine Odontoglossum grande Pittianum, and O. × Stamfordianum (bictoniense album × Uroskinneri), the latter being fairly intermediate in character, with greenish sepals and petals and the lip tinged with pink.

E. Rogerson, Esq., Oakdene, West Didsbury (gr. Mr. Price), sent Odontoglossum crispum Ethel, a richly blotched form.

J. Gurney Wilson, Esq., Glenthorne, Haywards Heath, sent a fine plant of Saccolabium violaceum Harrisonianum, a white variety of the species.

Messrs. Charlesworth & Co., Haywards Heath, staged a very fine group, to which a Silver-gilt Flora Medal was awarded. It contained a number of good Cattleya × Iris, and the variable C. × Rhoda, C. Harrisoniana alba, some good Læliocattleyas, including L.-c. Phœbus (L.-c. Cappei × C. × Iris), a richly-coloured hybrid, some good Vanda cœrulea, good examples of Odontoglossum grande and O. crispum, the beautiful O. c. xanthotes Charlesworthii, a very dark O. Harryanum, O. grande aureum, O. apterum, good examples of the rare Angræcum Buyssoni, the striking Chondrorhyncha Chestertoni, Oncidium incurvum album, Miltonia candida grandiflora, a batch of the pretty rose-coloured Phalænopsis Esmeralda, Dendrobium Cœlogyne, D. Phalænopsis, Masdevallia macrura, Pleurothallis loranthiformis, Cypripedium Fairrieanum and C. × Rossetti, a pretty Odontioda raised from Cochlioda Nœtzliana and Odontoglossum × armainvillierense, Cycnoches peruvianum Tracy's var., bearing an inflorescence of two female flowers, and a charming little cluster of Sophronitis grandiflora hybrids in front, prominent among them being several plants of Sophrolælia heatonensis and Gratrixiæ, and Sophrocatlælia Nestor (S.-l. Gratrixiæ × C. Dowiana). Awards of Merit were given to Cattleya × Miss Pitt superba (Harrisoniana × Dowiana aurea), a large bright rose form with purple lines in the throat of the lip, and to C. × Basil (Enid × Mantinii), a large and handsome form, having rose-purple sepals and petals, and a broad expanded ruby-crimson lip with a yellow disc.

Messrs. Stuart Low & Co., Bush Hill Park, staged a fine group, to which a

Silver Flora Medal was given. It contained several fine plants of Oncidium oblongatum, including the yellow variety citrinum, O. Lanceanum, O. unicorne, O. incurvum, several good plants of Dendrobium formosum, Cœlogyne Veitchii and Massangeana, six fine plants of Cycnoches chlorochilon, C. maculatum, Odontoglossum grande, Cirrhopetalum refractum, Pleurothallis stenopetala, Læliocattleya elegans, Odontioda Thwaitesii, some good forms of Cattleya Gaskelliana, C. × Iris, C. × Harold, a fine plant of C. × Minucia with a spike of seven flowers, &c. An Award of Merit was given to Cattleya × Rhoda conspicua (× Iris × Hardyana), a very beautiful form, much resembling a white form of C. × Hardyana. It had broad cream white sepals and petals, and the lip violet crimson, with a large yellow disc and some yellow veining in the throat.

Messrs. Mansell & Hatcher, Ltd., Rawdon, Leeds, Yorks, gained a Silver Flora Medal for a brilliant group, including about twenty good plants of the variable Cattleya × Iris, C. × Armstrongiæ, C. × Fabia, C. × Patrocinii, Brassocattleya Thorntoni, Oncidium Gardneri, a plant of Mormodes pardinum unicolor bearing two fine spikes of clear yellow flowers, the rare Trichocentrum albopurpureum, Dendrobium Dearei, Trichopilia subulata, Neobenthamia gracilis, Listrostachys pellucida, some good Odontoglossums, Cirrhopetalum guttulatum, Brassavola nodosa, Bulbophyllum Dearei, Seraphyta multiflora, Cypripedium insigne Sanderæ, C. × Maudiæ, C. × Flambeau, C. × Wiertzianum, &c.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including a good plant of the new Dendrobium Sanderæ, bearing five inflorescences, two of them with eight flowers each, the rare D. velutinum, D. chrysanthum, Læliocattleya Walter Gott (C. bicolor × L.-c. bletchleyensis), having bronzy yellow sepals and petals, and a rose-purple lip with some white at the base, L.-c. nitens (L.-c. Helena × C. Dowiana aurea), having deep yellow sepals and petals tinged with red, and a crisped ruby red lip with some yellow veining, Cattleya × Ella and other good Cattleyas, the very rare and distinct Cœlogyne Micholitzii, Cirrhopetalum refractum, Angræcum Scottianum, Eria floribunda, Lycaste macrophylla, Epicattleya Lilianæ, Oncidium pubes, and a most interesting plant of Cycnoches peruvianum, bearing a long raceme of male flowers and a short inflorescence of two female flowers on the same bulb.

Messrs. James Veitch & Sons, Chelsea, received a Botanical Certificate for a pan of Disa polygonoides, containing four plants, each bearing a compact spike of yellow flowers.

Messrs. Stanley & Co., Southgate, staged a pretty little group, including several plants of Cattleya × iridescens, showing much variation in colour, a good C. Gaskelliana alba, C. Minucia, C. × St. Gilles, Læliocattleya bletchleyensis, &c.

At the meeting held on October 12th there was again a very good display of Orchids, and the awards consisted of five medals, one First-class Certificate and four Awards of Merit.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), staged a fine group, to which a Silver Flora Medal was given. It contained the handsome yellow Odontoglossum grande Pittianum, O. × Neptune, a bright yellow hybrid blotched with brown, and other good Odontoglossums, Miltonia × Bleuana Our Queen, a fine white form with rose markings at the base of the lip, some good Læliocattleyas and Masdevallias, Cypripedium × Maudiæ, C. × Padgeni, C. × Chapmanii superbum and others, with the handsome Anguloa eburnea, whose history was given at page 316. A First-class Certificate was given to Cattleya × Hardyana The Baron (C. Dowiana aurea × C. Warscewiczii var. Frau Melanie Beyrodt), a very large aud beautiful white form, with a ruby-crimson lip, a pair of yellow blotches in the throat, and some yellow veining on the disc.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), received Awards of Merit for Dendrobium taurinum Colmanii, a pretty light-coloured variety from the Philippines, having rosy petals and the lip margined with the same colour, and for Cirrhopetalum Fascinator, a handsome species which was noted at page 155 of our last volume. He also sent the yellow Spathoglottis × Colmanii aurea and a few others interesting things.

Mrs. Norman C. Cookson, Oakwood, Wylam-on-Tyne (gr. Mr. Chapman) received an Award of Merit for Cypripedium × Faire-Maude (Fairrieanum × Maudiæ), a large dark form resembling C. × Juno, the dorsal sepal being tinted with rose and striped with purple.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received an Award of Merit for Cypripedium × Cynthia (Charlesianum × Charlesworthii), a very fine hybrid, having a white dorsal sepal marbled with rosy lilac, and the petals greenish, tinged and spotted with purple. He also sent the fine C. × Germaine Opoix Westfield var., C. × nitens-Leeanum var. Hannibal, C. × Gaston Bultel var. King Edward VII., C. × nitens alportense, Cattleya × Dirce (Vulcan × Warscewiczii), having deep rose-coloured sepals and petals, and a three-lobed lip veined with rose-purple, and the handsome C. × Heloisiæ (Forbesii × Mossiæ Reineckeana), a pretty blush white flower marbled with rose on the lip.

J. Foster Alcock, Esq., Exhims, Northchurch, sent Cypripedium × Baron Schröder, New Hall Hey var., a richly-coloured form.

R. Brooman White, Esq., Arddarroch, Garelochead, N.B., sent a beautiful series of Odontoglossum crispum flowers, both white and spotted, which had been selected from about 400 fine spikes. The plants are said to be placed

outdoors throughout the summer, and thrive well in a district where Sphagnum moss and Hymenophyllum grow naturally.

F. Menteith Ogilvie, Esq., Oxford (gr. Mr. Balmforth), sent Sophrocattleya Doris, Shrubbery var., a good dark form with a yellow throat to the lip.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, showed Cattleya × newingtonensis (Mrs. J. W. Whiteley × Harrisoniana).

E. Rogerson, Esq., Oakdene, West Didsbury (gr. Mr. Price), sent the handsome Cypripedium × Priam (insigne Chantinii × Niobe, having a large white dorsal sepal blotched with purple.

Baron Sir H. Schröder, The Dell, Egham (gr. Mr. Ballantine) showed the interesting Cattleya × lamberhurstensis (intermedia × citrina), in which the characters of two remarkably distinct species are combined.

W. Thompson, Esq., Walton Grange, Stone (gr. Mr. Stevens), showed Odontoglossum × exultans (crispum × excellens), a pretty light yellow flower blotched with brown, and Cypripedium Daisy Barclay var. dunhamense, prettily tinged and lined with purple on a light ground.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, to which a Silver Flora Medal was given. It contained a lot of good Cattleyas, Læliocattleyas, and Odontoglossums, including two good O. grande aureum, L.-c. luminosa, some fine examples of Vanda cœrulea, the rare Pescatorea Dayana, the pretty little Lælia monophylla, the rare Disa polygonoides, Saccolabium violaceum Harrisonianum, Odontioda Bradshawiæ, Angræcum imbricatum, and other good things.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Flora Medal for a good group, including forms of Cattleya × Venus, × Iris, × Adula, and × Vulcan, Epidendrum vitellinum, Sophrocattleya Doris, Dendrobium formosum, Habenaria militaris, Læliocattleya Ophir, a plant of Oncidium × hæmatochilum, O. curtum, and other Brazilian species, the rare Cirrhopetalum Mastersianum, and other interesting things.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a fine group, including some good Læliocattleyas, a splendid example of Vanda cœrulea, Cattleya × Lord Rothschild and other Cattleyas, Cœlogyne speciosa, C. oculata, and various other good things, with a fine plant of Arachnanthe Lowii in the centre, bearing three yellow flowers at the base, and 29 others of the usual green and crimson type.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group, including a number of Dendrobium Phalænopsis, a good batch of Cypripedium Fairrieanum, C. × Maudiæ, C. × Milo Westonbirt var., Masdevallia Chimæra, Miltonia vexillaria Leopoldi, Oncidium Papilio, varicosum and Forbesii, some good Cattleya × Mantinii and others.

Messrs. Armstrong & Brown, Tunbridge Wells, sent Cattleya × radiata (Dowiana aurea × Pittiana), with cream yellow sepals and petals, and the front lobe of the lip rosy crimson, with some yellow in the throat, C. Rothschildiana, Orchidhurst var., a good light form, and Læliocattleya Purple Empress (L.-c. × Fournieræ × C. × Hardyana).

Mr. James Douglas, Edenside, Great Bookham, sent a fine dark Læliocattleya Gottoiana.

Mr. A. W. Jensen, Lindfield, Haywards Heath, sent a fine Odontoglossum crispum and a very brilliant O. Harryanum.

Mr. E. V. Low, Vale Bridge Nursery, Haywards Heath, sent Odontoglossum grande Pittianum, Cypripedium × Rossetti, and the fine C. × Germaine Opoix.

M. Maurice Mertens, Mont St. Amand, Ghent, showed a few good hybrid Odontoglossums.

Mr. Charles Turner, Slough, sent two good plants of Lælia pumila, one with blush white, the other with rosy flowers.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AT the meeting held at the Coal Exchange, Manchester, on October 7th, there was an excellent show of plants, the room being well filled. The Committee sat as follows:—Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Cowan, Ward, Arthur, Warburton, Keeling, Ball, Shill, Holmes, Ashton, Smith, Parker, and Weathers (Hon. Sec.).

J. T. Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a specially fine group of plants, full of interest and variety, many rare botanical species being represented. A central group of Cattleyas, Lælias, &c., received a Silver Medal, the whole group gaining the Society's Silver-gilt Medal. Awards of Merit were given to a fine Læliocattleya Ophir, L.-c. lythamensis, Catasetum fimbriatum, and Stanhopea oculata Shuttleworthii, and First-class Botanical Certificates to the dainty Oncidium Retemeyerianum and to Cœlogyne Veitchii. Several other botanical curiosities gained Second-class Certificates. I noted many varieties of Odontoglossum, Cypripedium, Vanda cœrulea and Kimballiana, Stenoglottis longifolia, the richly-tinted Cattleya × Iris, and varieties of Brassocattleya, Læliocattleya, &c.

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a fine group, composed of hybrid Cattleyas, Lælias, Cypripediums, and several fine well-flowered Stenoglottis longifolia. A very bright and effective hybrid Læliocattleya × Wilfred (C. Dowiana aurea × L.-c. Gottoiana), received a First-class Certificate, Awards of Merit going to L.-c. Ophir, Cattleya × Peetersii and Sophrolælia Penelope. A very fine pan of Odontoglossum grande received a Cultural Certificate (Silver and Silver-gilt Medals).

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), staged a group

of Cattleyas, Lælias, &c. C. × Armstrongiæ Hey House var. and Lælio-cattleya × Chantinii memoria Law Schofield received Awards of Merit. The group included L.-c. × Bryan (Duchess of York), L.-c. callistoglossa, L.-c. Henry Greenwood, the true Cattleya Loddigesii, C. Harrisoniana, C. × Adula, and many others (Silver Medal).

J. Rutherford, Esq., M.P., Beardwood, Blackburn (gr. Mr. Lupton), staged some well-grown plants of Oncidium varicosum Rogersii, Cypripedium × Maudiæ, C. × Rossetti, Cattleya × Maroni, C. bicolor, &c., the whole forming a pretty group (Silver Medal).

Charles Parker, Esq., Ashton-on-Ribble, Preston, staged a small group of choice Cypripediums. C. Charlesworthii var. Prestona gained an Award of Merit. I noted C. × Maudiæ, C. × A. de Lairesse, C. × Kubele, C. × Lord Derby, C. × Baron Schröder, C. Burtoni, &c. (Silver Medal).

H. J. Bromilow, Esq., Rann Lea (gr. Mr. Morgan), staged a small group of Cypripediums, which included C. Fairrieanum, C. bellatulum album, C. × Sir Redvers Buller, C. × Kubele magnificum, C. × Maudiæ magnificum, &c. (Bronze Medal).

N. Galloway, Esq., Great Horton, Bradford, sent a small miscellaneous group, which received a Bronze Medal, and a fine Cypripedium × Rossetti gained a First-class Certificate.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), sent Cypripedium × Duchess, var. Corneyanum, a fine C. × Juno, and C. × Gaudii aureum.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Fletcher), sent Odontioda Thwaitesii (Award of Merit), and Miltonia vexillaria Leopoldi.

Rev. J. Crombleholme, Clayton le Moors, received an Award of Merit for Cypripedium × Lumsdenii var. vinolentum.

S. Gratrix, Esq., West Point, Whalley Range (gr. Mr. Shill), sent the fine Cypripedium × Bianca superbum (First-class Certificate).

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), gained an Award of Merit for a seedling Odontoglossum crispum var. Eclipse.

Mr. J. Robson, Altrincham, sent the exceptionally fine Cypripedium × Lord Ossulston, Sander's var., a most delicately tinted form (First-class Certificate).

Mr. W. Shackleton, Great Horton, Bradford, staged a small but effective group of plants, in which were several good Odontoglossum crispum, Cypripedium niveum, and a variety of Sigmatostalix (Bronze Medal).

Mr. J. Birchenall, Alderley Edge, sent Zygopetalum Amesianum, Miltonia Lamarcheana, Trichopilia fragrans, &c.

Mr. W. Bolton, Wilderspool, Warrington, staged a fine Cypripedium Charlesworthii, and a seedling much after the "Thalia" type.

Ed. Rogerson, Esq., sent a pretty Odontoglossum crispum Solar Star,

having pure white sepals and petals and a deeply blotched lip (Award of Merit).

The Liverpool Orchid & Nursery Co., Gateacre, sent Læliocattleya Bella, Cattleya × Iris and a few Cypripediums.

Messrs. Muirhead & Willcock showed a very distinct Cypripedium × Berkeleyanum var. dunhamense (First-class Certificate).

The meeting held on October 21st resulted in an excellent show, probably the best of the season so far. The Committee present were Messrs. E. Ashworth (Chairman), R. Ashworth, Thorp, Ward, Cowan, Arthur, Shill, Warburton, Keeling, Holmes, Ashton, Cypher, Parker, and Weathers (Hon. Sec.). The exhibits were very numerous and of good quality.

J. T. Clifton, Esq., Lytham Hall (gr. Mr. Float), staged a magnificent group, which filled one side of the central stage, almost every species of Orchid in season being represented, as well as many valuable hybrids. The group gained a Silver-gilt Medal for Cattleyas, Lælias, &c., and the Society's Gold Medal for a general group. The beautiful Cattleya × Hardyana alba, Countess Torby, the deeply-coloured C. × Hardyana, H.I.H. Grand Duke Michael, and C. × Iris, The Prince, all gained First-class Certificates, the same award going to Arachnanthe Lowii, a grand plant with a fine raceme of flowers. Awards of Merit were given to Cattleya labiata pallida, Phaius Zollingeri, and Catasetum Cliftoni. Of the many rare botanical plants brief mention can only be made. Coryanthes maculata punctata, Burlingtonia rigida, Catasetum Cliftonæ, C. macrocarpum, Arpophyllum giganteum, and Pleurothallis scapha all received First-Class Botanical Certificates, Second-class ditto going to Pleurothallis pulchella and Disa polygonoides.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr. Mr. Rogers), sent a specially well-grown and floriferous group. At each end were banked fine plants of Dendrobium Phalænopsis, exceptionally well bloomed, several of the spikes bearing upwards of twenty flowers. In front were many grand plants of Cypripedium Fairrieanum of good type, and behind about a dozen plants of C. × Maudiæ and C. × M. magnificum, while further back were well-flowered Odontoglossum grande, Vanda cœrulea, Cattleya × Iris, &c. This very fine group was awarded a Special Vote of Thanks.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), gained a Silver-gilt Medal for a good group of Cattleyas, Lælias, and hybrids of same. Læliocattleya × Lady Rothschild and Cattleya labiata Chillingham Castle var. both gained Awards of Merit. The group also included Cattleya Dowiana aurea, C. × Mantinii nobilior, C. × Fabia, and many other choice things.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish),

staged a group, including Odontoglossum Uroskinneri album and other good types of Odontoglossum, with Dendrobium Phalænopsis album and Cypripedium × Florodora. An Award of Merit was given to Cypripedium × Lee-Curtis (Silver Medal).

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), staged a mixed group, which gained a Silver-gilt Medal. Læliocattleya × Decima (L.-c. Epicasta × C. Eldorado), a distinct and richly-coloured hybrid with a large amount of lemon yellow in the throat of the lip, received a First-class Certificate, and Awards of Merit were given to Cattleya labiata Wigan's var., C. l. Moorfield var., C. × Hardyana Moorfield var., and C. × weedoniensis var. Mona. I noticed a large and highly-coloured Vanda cœrulea, many varieties of Cypripedium, Oncidium, stout spikes of Zygopetalum Mackayi, &c.

Ziba A. Ward, Esq., Cringlewood, Northenden (gr. Mr. Weatherby), staged a fine group of Odontoglossum and Cypripedium, with a few choice Cattleyas. I noted Cypripedium insigne Sanderæ, C. i. Harefield Hall var., C. i. Chantini Lindeni, C. i. aureum Hardy's var., Cattleya × Iris, C. × Adula, C. × Ashtonæ, Odontoglossum Vuylstekeæ, and many well-grown O. crispum.

H. J. Bromilow, Esq., Rann Lea (gr. Mr. Morgan), staged a small but choice group of Cypripediums, including C. × bingleyense, C. × Kubele magnificum, C. × St. Albans, C. bellatulum album, C. Fairrieanum, and the curious and rare Dendrobium Cœlogyne (Silver Medal).

G. S. Ball, Esq., Burton, Westmoreland (gr. Mr. Herdman), showed a nice group, including many varieties of Cattleya × Iris, Cypripedium × Astræa, Thompson's var., C. × beechense superbum, C. concolor G. S. Ball's var., C. insigne Bohnhoffianum, C. i. McNabianum, C. Curtisii exquisitum, C. × Baron Schröder, Ardern's var., &c. (Silver Medal).

Norman Galloway, Esq., Great Horton, Bradford, gained a Silver Medal for a mixed group, and an Award of Merit for Cypripedium Rolfei, Galloway's var. I noted C. × Minos Youngii, C. × Rossetti, Dendrobium Dearei, several plants of Miltonia candida grandiflora, &c.

J. Rutherford, Esq., M.P., Beardwood, Blackburn (gr. Mr. Lupton), showed a small group, including Cattleya Dowiana aurea, C. × Mantinii, C. labiata, and various well-flowered Oncidiums (Bronze Medal).

Chas. Parker, Esq., Ashton-on-Ribble, staged a small group of Cypripediums, including C. × Baron Rothschild, C. × Gravesii, C. × Maudiæ, &c. (Bronze Medal).

E. Ashworth, Esq., Harefield Hall (gr. Mr. Holbrook), gained Awards of Merit for Lælia pumila broomfieldensis and L. p. Wellsiana.

J. J. Holden, Esq., Southport (gr. Mr. Johnson), received a First-class Certificate for Cypripedium × Venus, Holden's var., and an Award of Merit for Lælia Perrinii niveum.

H. J. Craven, Esq., The Beeches, Keighley (gr. Mr. Corney), showed the fine Cypripedium × eboraicum.

Messrs. Cypher & Sons, Cheltenham, staged a good group of mixed plants. Læliocattleya × Ophir superba gained an Award of Merit, and a Cultural Certificate was given to Cattleya × Portia gigantea, grown to a strong plant from one back bulb in three years, and with three leads flowering. I noted also C. × Mantinii nobilior, C. × Fabia, Miltonia vexillaria Leopoldi, many varieties of Dendrobium Phalænopsis, Cypripedium × triumphans, C. × Minos Veitchii, C. × Niobe superbum, &c. (Silver Medal).

Ed. Rogerson, Esq., Didsbury, showed Cattleya × Hardyana, Læliocattleya × Lady Rothschild, Cypripedium × Gaston Bultel, C. × Thalia giganteum, C. × Priam, C. × Leeanum Prospero, C. × Niobe, C. × Tityus, C. × Troilus, &c. (Silver Medal).

Messrs. Keeling & Sons, Westgate Hill, Bradford, gained a Bronze Medal for a small but choice group, consisting chiefly of Cypripediums.

Messrs. Stuart Low & Co., Enfield, staged a small but choice group of Cattleyas, Læliocattleyas, &c., which received a Bronze Medal.

Mr. J. Robson, Altrincham, showed Cattleya × Cypheri, C. × weedoniensis var. Mona, and C. × St. Gilles, all of which received Awards of Merit.

Mr. Wm. Bolton, Wilderspool, staged Miltonia × Bluntii Lubbersiana, Cypripedium × triumphans, C. × Para, C. × Baron Schröder, &c.

Messrs. W. Shackleton, J. Birchenall, and the Liverpool Orchid and Nursery Co., each received a Vote of Thanks for a small exhibit.

H. THORP.

DENDROBIUM MURICATUM VAR. MUNIFICUM.

AT the R.H.S. meeting held on August 31st last, a Botanical Certificate was given to Dendrobium muricatum, a remarkable New Caledonian species which was exhibited by Mr. F. W. Moore, Keeper of the Royal Botanic Garden, Glasnevin. The species was described from dried specimens by M. Finet, in 1903 (*Bull. Soc. Bot. Fr.*, l. p. 377, t. 14, fig. 1-6), together with the variety munificum (*l.c.*, p. 378, t. 14, fig. 7-18), which was distinguished by a markedly different shape of the lip. The Glasnevin plant proves to be the latter variety. Finet refers the species to the section Dendrocoryne, and compares it with D. speciosum, Sm., but a comparison shows that it is much better placed in the section Sarcopodium, with which it agrees well, both in habit and structure. The plant is of robust habit, and the pseudobulbs are ovoid-oblong, and one-or-two-leaved, the leaves elliptic-oblong and coriaceous, and the inflorescence terminal, arching, over eight inches long,

and bearing numerous flowers, with spreading sepals and petals, greenish-white in colour, and closely dotted with brownish purple, and the spathulate lip purple, with a yellow apex. The specific name refers to the muricate roots, which recall those of D. mutabile, Lindl. It is a distinct and striking plant. R.A.R.

ORCHIDS IN SEASON.

A PARTICULARLY large and handsome Cattleya is sent from the collection of John Leemann, Esq., West Bank House, Heaton Mersey, by Mr. Smith. It was raised by Messrs. Duchesne, Lanthoine & Co., from C. Lueddemanniana (speciosissima) and C. × Hardyana, and thus will be a form of C. × Thurgoodiana (*O.R.*, xii. p. 246). The flower is excellent in shape, and measures eight inches from tip to tip of the broad rose-purple petals, while the lip is rich crimson-purple in front, with an orange yellow throat. It is flowering for the second time this year. A curious reversion of Odontoglossum crispum is also sent. It was obtained by crossing the handsome O. c. Cooksoni (of which a good flower is sent) with O. c. Perfection, a very round and heavily blotched form which was described at page 24 of our thirteenth volume. The seedling may be described as an ordinary white form, with a red-purple blotch on the lip. It is the second seedling of the batch to bloom, and the first is said to have had spotted petals. It is another example of a phenomenon with which we are now becoming familiar, and we should not be surprised to see a few well-blotched flowers among the seedlings. We wish Mr. Smith would dry a single flower of each, with one of the parents, and forward them when the series is complete. They are quite easily dried in blotting paper after just cutting off the pedicel.

Flowers of two handsome Cattleyas are sent from the collection of Francis Wellesley, Esq., Westfield, Woking, by Mr. Hopkins. C. × Rothschildiana Westfield var. has light mauve-lilac sepals and petals, and the throat and disc of the lip orange yellow. C. × Empress Eugenie (C. × Pittiana × Dowiana aurea) is a very large flower, having broad lilac sepals and petals, and the lip strongly three-lobed, with ample rounded side lobes, and a broad undulate purple-crimson front lobe, with some deep yellow in the throat. They are seedlings flowering for the first time.

Several interesting flowers are sent by His Honour Judge Philbrick, Bodorgan House, Bournemouth. There is a magnificent spike of Cattleya × Appletoni (elongata × Dowiana aurea), measuring twenty inches long and bearing five very richly coloured flowers, with sepals and petals of a rich bronzy yellow, and the front lobe of the strongly three-lobed lip rose-purple, and very broad, with some yellow in the throat. The bulbs are said to be nineteen inches long, and two-leaved. Paphiopedilum × gigas

Corndean var. is a very large and richly-coloured flower, and a flower of P. × Brandtiæ (Io × Youngianum) is very fine, and has broad, handsomely-spotted petals, and a very light-coloured dorsal sepal. The scape was two-flowered. There is also a flower of P. purpuratum, which, it is remarked, is very floriferous and easy to grow, also a twin-flowered scape of a richly-coloured P. barbatum, having the petals well blotched on the lower half, a very attractive form.

An inflorescence of the very rare and interesting Odontoglossum præstans is sent from the collection of W. Thompson, Esq., Walton Grange, Stone, by Mr. Stevens, who remarks that it is the only plant he has ever seen. It is one of the gloriosum section, and is characterised by its long acuminate segments, which are light yellow, copiously spotted with brown, and its very long cirrhate column wings. It was figured at page 9 of our tenth volume, where its history was given. The inflorescence now sent is from the same plant. There are also some seedlings. One from O. crispo-Harryanum × crispum Stevensii has rosy sepals and petals with much darker blotching, the lip much marbled with brown on a lighter ground, and the crest yellow and somewhat spiny. Another is supposed to be from O. crispo-Harryanum × Vuylstekei, and is most like the latter in colour, with a very broad dark lip, in which the Harryanum influence is well shown. A third is regarded as a form of O. × Wilckeanum, and has rosy sepals with a few large red-purple blotches, and a few small spots on the white petals, while the lip has a large brown blotch in front of the yellow crest. The other is a stray seedling, and is heavily blotched with crimson-brown on a nearly white ground. They should develop into handsome things.

A curious twin flower of Oncidium varicosum Rogersii is sent by Messrs. Stanley & Co., Southgate. The column is double, and there are two distinct lips and twice the usual number of sepals and petals. The reason is that the flowers are fused together.

A very curious abnormal flower of Paphiopedilum insigne is sent from the collection of G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, by Mr. Page. One side of the lip is completely missing, but there is an additional free petal in front, and an additional petal and stamen on the side where the missing half of the lip would be. The lower united sepal is replaced by a pair of diverging sepals, and the additional median petal is placed between them and the normal petals. The back of the flower is quite normal, but the lip is entirely broken up, all the parts being free, and curiously enough the parts are complete. There are three free sepals, three free petals, three perfect anthers of the inner whorl, the normal staminode, the staminode which forms one side of the lip, perfect but free, while that on the other side is transformed into an ordinary petal. Thus the flower has reverted to the normal Monocotyledonous type.

A flower of the rare Dendrobium Cœlogyne is sent from the collection of W. R. St. Quinton, Esq., Scampston Hall, Rillington, by Mr. F. C. Puddle, together with a seedling from Paphiopedilum × nitens superbum × Charlesworthii. It is a form of P. × Thornianum (*Orch. Stud-Book*, p. 307), and the dorsal sepal is prettily blotched with rose-purple on a white ground.

SPECIES KNOWN FROM DESCRIPTION ONLY.

THE difficulty of identifying species of Orchids from description is not always fully appreciated, and although not confined to Orchids there are few groups to which it applies with greater force, owing to their complexity of structure. This fact emphasises the importance of preserving dried specimens and drawings for future reference. The difficulty mentioned is necessarily increased when descriptions are incomplete or inadequate, in which connection the following incident may be interesting. A name being wanted for a species of Stanhopea allied to S. Wardii, we looked up the descriptions of missing species of that affinity, and found the following :—

"STANHOPEA COSTARICENSIS aff., St. Wardii, hypochilio pandurato, inferne profunde intruso, hinc quasi bigibbo, gibbere antico curvato, transverso, postice utrinque carinato, canali subclauso.

Von Costa Rico in Herrn Consul Schiller's Sammlung."

"STANHOPEA GIBBOSA, sp. n., aff., Stanhopeæ Wardii hypochilio incurvo, latere utroque superiore unicarinato, lato, pectore arguto præcincto, canali angustissimo, aperto, portione apposita lata eboracea quadrata utrinque, cornubus falcato ligulatis ; epichilio oblongo acuto, basi gibbere solido magno ; columnæ curvæ auriculis anguste triangulis, alis semiovatis angustis a medio auriculas usque.

A species in the way of Stanhopea Wardii, but quite distinct. We obtained it from Messrs. Veitch & Sons. H. G. Rchb. fil."

This is the complete record. No dimensions, no record of colour, no mention of sepals and petals, and in one case no record of country, and if an attempt is made to ascertain the missing details by consulting the original specimens, one finds them sealed up for a quarter of a century so that none may look at them. And yet botanical laws and customs which are powerless to prevent such an outrage can render such names sacrosanct by a law of priority. One may be anxious to avoid imposing a new name and yet powerless to prevent it by the sheer impossibility of ascertaining to which species the names really apply. Perhaps they are already redescribed. Some curious questions will probably arise when the Reichenbachian Herbarium is opened. Meantime should anyone happen to have a sketch or other material which may throw light on the missing species, we hope to be favoured with the information.

R. A. R.

SACCOLABIUM PENANGIANUM.

THE interesting little Saccolabium penangianum, Hook. f., has appeared in cultivation. Some time ago a number of Orchids were received at Kew from the Brussels Botanic Garden, which were said to have been obtained from the Straits Settlements, and one which has just flowered proves to be this rare species. It was described in 1891 (*Fl. Brit. Ind.*, vi. p. 57), from specimens collected on the Sonkey River, Penang, by Curtis, and a drawing from Perak by Kunstler, and was afterwards figured (*Hook. Ic. Plant.*, t. 2129, fig. B; *Ann. Bot. Gard. Calc.*, v. p. 47, t. 71). It is remarkable for having the rachis and pedicels of the flowers pubescent, a character not previously noticed in the genus. It is quite a small plant, the stem being only a few inches high, and the lanceolate, acute leaves are 2¼ to 3 inches long by ¼-inch broad. The flowers are crowded into a cylindrical spike about an inch long. The sepals are light yellow and puberulous outside, and the rest of the flower whitish, with the side lobes of the lip and wings of the column narrowly margined with purple. The spur is about twice as long as the sepals and narrowed towards the apex. Saccolabium is becoming rather a large genus, and a good many small-flowered species are not known in cultivation. R. A. R.

NOTES.

Two meetings of the Royal Horticultural Society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, during November, on the 9th and 23rd, when the Orchid Committee will meet at the usual hour, 12 o'clock noon.

Meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, on November 4th and 18th. The Committee meets at noon, and the exhibits are open to inspection from 1 to 4 o'clock p.m. The following meeting is fixed for December 2nd.

We have received the programme of the International Horticultural Exhibition to be held at Florence in May, 1911, under the auspices of the Société Royale Toscane d'Horticulture. The second section is devoted to Orchids, and contains 13 classes, chiefly for groups, for which gold and silver medals are offered. There is a class for terrestrial Orchids, and another for a specimen of Vanilla with flowers and fruit; also six Orchid classes in the section for novelties or plants of recent introduction.

Odontoglossum × moortebeekiense, described at page 315, is a synonym of O. × Fletcherianum (*O.R.*, xiv. pp. 248, 255). The earlier name was accidentally overlooked when the note was written.

ORCHID PORTRAITS.

ANGRÆCUM SESQUIPEDALE.—*Journ. Hort.*, 1909, ii. p. 387, with fig.

BULBOPHYLLUM (Cirrhopetalum) CAMPANULATUM, Rolfe.—*Bot. Mag.*, t. 8281.

BULBOPHYLLUM SAUROCEPHALUM.—*Gard. Chron.*, 1909, ii. p. 242, fig. 107.

CATTLEYA × IRIS, KING EDWARD VII.—*Gard. Chron.*, 1909, li. p. 258, fig. 114.

CATTLEYA × MRS. PITT, VAR SUPERBA.—*Journ. Hort.*, 1909, ii. p. 411, with fig.

CATTLEYA REX.—*Journ. Hort.*, 1909, ii. p. 363, with fig.

CYPRIPEDIUM × CYNTHIA, WESTONBIRT VAR.—*Gard. Mag.*, 1909, pp. 828, 829, with fig.

CYPRIPEDIUM INSIGNE SANDERÆ.—*Gard. Life*, 1909, p. 42, with fig.

CYPRIPEDIUM × PARVIFLORUM.—*Gard. Chron.*, 1909, ii. pp. 227, 228, fig. 97.

CYPRIPEDIUM THUNBERGII.—*Gard. Chron.*, 1909, ii. p. 228, fig. 98.

CYPRIPEDIUM × VENTRICOSUM.—*Gard. Chron.*, 1909, ii. p. 228, 229, fig. 99.

CYPRIPEDIUM × WIERTZIANUM, EXHIMS VAR.—*Journ. Hort.*, 1909, ii. p. 339, with fig.

DENDROBIUM TAURINUM VAR. COLMANII.—*Gard. Mag.*, 1909, p. 813, with fig.

LÆLIOCATTLEYA PIZARRO, HOLFORD'S VAR.—*Gard. Mag.*, 1909, p. 763, with fig.

SOBRALIA × AMESIANA.—*Gard. Illustr.*, 1909, p. 581, with fig.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

J. C.—Dendrobium superbiens.

F. S. H.—Sarcanthus pallidas.

A. E. B.—Paphiopedilum insigne Ernestii (or Cypripedium, as then called) appeared in the collection of the late R. I. Measures, Esq., of Camberwell, in 1893, and was described at page 362 of our first volume. A year later it received an Award of Merit from the R.H.S. (*O.R.*, ii. p. 374).

H. G. A.—1, Oncidium cornigerum; 2, O. prætextum.

J. F.—Liparis latifolia.

H. T.—Cattleya Schofieldiana, Rchb. f., is believed to be a form of C. granulosa, Lindl.

ERRATUM.

The locality of Anguloa eburnea given at page 316 as Moyombamba should be corrected to Moyobamba.

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An Illustrated Journal of Orchidology

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THE ORCHID REVIEW.

VOL. XVII.] *DECEMBER*, 1909. [No. 204.

THE EVOLUTION OF THE ORCHIDACEÆ.

(*Continued from page* 292.)

THE large tribe Ophrydeæ follows Neottieæ quite naturally, for the flowers show a far higher degree of complexity, and, as Darwin remarks, some ancient form of Neottieæ, combining most of the characters of Epipactis, Spiranthes and Goodyera, but in a less developed state, would by further modification give rise to the whole tribe of Ophrydeæ. It contains upwards of 800 species, including such well-known genera as Orchis, Ophrys, Habenaria, Satyrium and Disa.

The Ophrydeæ are all terrestrial, and the rhizome usually forms a distinct tuber, from which the next year's growth is produced, after which the old tuber shrivels up and disappears. The stem is simple, usually leafy, either at the base or throughout, and bears a simple terminal raceme or spike, which dies down after ripening its seed. Bentham remarks that the Ophrydeæ. as established by Lindley, form a perfectly distinct tribe, circumscribed by positive characters derived from the anther, to which there is no exception, nor are there any intermediate forms connecting it with other tribes. The anther is adnate to the top of the column, and erect above the rostellum or turned back away from it: the anther cell or connective perfectly continuous with the clinandrium, and the two raised cells quite distinct, parallel or diverging and tapering at the base, so as to appear in a reversed position, their tapering ends being either adnate or applied upon the apex of the column, and thence frequently on to the lobes of the rostellum, with their back and not their dehiscent front regarding the rostellum. The pollen is usually coarsely granular, forming in each cell one or rarely two masses, produced into the tapering base of each cell in a slender caudicle, applied to a gland, in most cases free from the rostellum.

Pfitzer places Ophrydeæ immediately after the Diandræ and before Neottieæ, because of the non-operculate anther, but this is not its true position, for the group shows a far higher degree of specialisation, indeed the genus Bonatea is one of the most complex in the Order, as will be seen presently. The basal position of the caudicle and gland are clearly correlated with the specialised structure of the anther.

Although the tribe is as a whole very natural and sharply defined, its division into genera and their arrangement in natural sequence is a matter of considerable difficulty, and in the delimitation of genera much diversity of practice exists. Bentham recognises four subtribes, namely Serapiadeæ, Habenarieæ, Diseæ and Corycieæ.

The subtribe Serapiadeæ is characterised by having the glands of the pollinia enclosed in distinct membranous pouches situated at the back of the rostellum, which protect a round ball of viscid matter serving to attach the pollen masses to the visiting insect. It contains the four genera, Orchis, Aceras, Ophrys and Serapias, the two former including some of our most familiar British species. The group is widely diffused in Europe, temperate Asia, and North America, and there are two somewhat anomalous representatives in North America.

The structure of Orchis mascula was very fully described by Darwin, and is fairly typical of the whole genus. The sepals and petals form a hood over the column, and the lip forms a kind of landing stage in front, while its base is prolonged into a stout spur. The flowers are fertilised by several species of humble bee, and Hermann Müller caught ninety seven specimens which were visiting the flowers, and of these thirty-two had pollinia attached to their heads. The bee alights on the lip and inserts its proboscis into the spur, in doing which it touches the rostellum which projects into the mouth of the spur. The rostellum is protected by an exterior membrane which, when touched, ruptures in two lines, allowing the pouch of the rostellum to be depressed as the insect pushes forward, when it inevitably comes in contact with one or both of the viscid balls to which the caudicles of the pollinia are attached. So viscid are these balls that whatever they touch they firmly stick to. The viscid matter has, moreover, the peculiar chemical property of setting hard, like cement, in a few minutes time. As the anther cells are open in front the pollinia will be withdrawn as the insect retreats, firmly cemented to its head like a pair of projecting horns. And now another beautiful contrivance comes into play. The caudicles are hygrometric, and on exposure to the air begin to contract in a definite direction, causing the pollinia to curve forward through an angle of about ninety degrees, the movement being completed in about thirty seconds, and in the new position they are placed so that they come in contact with the stigma of the next flower visited. And here another very pretty adaptation is seen. Both the stigma and the gland of the rostellum are viscid, and when the insect retreats something must give way, and this is the elastic threads by which the packets of pollen are attached to the caudicle. All these points can be demonstrated artificially. If a pointed stick or lead pencil be pushed into the spur and then gently withdrawn the pollinia will be found attached to it, and the remarkable movement of the pollinia can

be watched. This being completed, the pencil may again be inserted, when the pollinia will touch the stigma, and some of the packets of pollinia will adhere to it. It may also be seen how one pollinium can be applied to many stigmas, leaving a few packets of pollen on each, and thus fertilising them. The whole forms a very beautiful example of adaptation, and it is significant that when a healthy plant of O. mascula was covered with a bell glass not a single pollinium was removed, and of course no seeds were produced.

The action of the organs in Orchis mascula applies to various others, but with modifications in accordance with the different species and the insects which visit them, the latter including also flies and butterflies. The fact is that a great deal is now known about the fertilisation of our European Orchids, and it helps us in understanding many peculiarities of floral structure, all of which are seen to have their special significance.

The genus Ophrys is remarkable for the resemblance of the lip to certain insects, hence the popular names of Bee, Fly and Spider Orchis. There are about thirty species, and most of them are remarkable for the possession of shining protuberances on the lip, whose function is not very well understood. The lip has no spur, and the glands of the rostellum are contained in separate pouches. Much less is known about the insects which fertilise them than in the case of Orchis, though from their highly complex structure it is clear that they are adapted for insect fertilisation.

Darwin often watched the flowers of the Fly Ophrys, O. muscifera, but never saw them visited by insects, though Hermann Müller once saw a fly seated on the lip, licking up the little drops of fluid which are occasionally exuded by it. Capsules are also rare, for Darwin once marked eleven plants, which only produced seven capsules between them, though he remarks that the flowers must be visited by insects, for he examined a number of plants during four successive years, and found that out of 207 flowers 88 had one or both pollinia removed.

In the Bee Ophrys, O. apifera, however, the flowers are regularly self-fertilised, and this arrangement is effected by a very slight modification of structure. The caudicles of the pollinia are remarkably long, thin and flexible, instead of being rigid enough to stand upright, as in other species of the genus. The anther cells open soon after the flowers expand, and the thick ends soon fall out, the viscid discs still remaining in their pouches. The pollinia thus hang free in the air in front of the viscid stigmas, but are soon blown on to them by the wind, when they adhere and impregnation is effected. The result is that spikes of the Bee Ophrys often produce as many seed-capsules as flowers, which affords a great contrast with the Fly Ophrys, which requires insect aid for its fertilisation.

Darwin was so much surprised at the self-fertilisation of this species that

he watched the plants frequently, but never saw one visited by an insect. He also found that the pollinia mostly remained attached to the anther, though in some cases they had been removed. "The whole case," he remarks, "is perplexing to an unparalleled degree, for we have in the same flower elaborate contrivances for directly opposed objects. . . . That cross-fertilisation is beneficial to most Orchids we may infer from the innumerable structures serving for this purpose which they present. . . . On the other hand, self-fertilization is manifestly advantageous in as far as it ensures a full supply of seed; and we have seen with the other species of Ophrys which cannot fertilise themselves how small a proportion of their flowers produce capsules. Judging therefore from the structure of the flowers of O. apifera, it seems almost certain that at some former period they were adapted for cross-fertilisation, but that failing to produce a sufficiency of seed they had become slightly modified so as to fertilise themselves." The small genera Aceras and Serapias need not detain us, and we now pass to the remarkable Habenaria group. R. A. R.

(*To be continued.*)

DIES ORCHIDIANI.

I AM indebted to an esteemed correspondent for some press cuttings relating to "A New Orchid," which, it is stated, formed a feature of a recent flower and fruit show held at the Horticultural Hall. It is said to be "white with green and purple-tinted centre, and this is the first time it has been known to bloom in English soil. This new species has its home in New Guinea, and whether it will survive the English climate remains to be seen." Whether they have been reading the notes on Hardy Orchids which recently appeared in the *Review* is more than I can say, but at all events two other papers make a similar remark about New Guinea and the English climate, and one of them heads the paragraph "Suffragette Orchid," and adds, "If it does"—survive the English climate—"it will no doubt be appropriated by the Suffragettes, whose colours it bears."

A fourth paper has quite a story about "The New Orchid," and gives "Interesting details of its discovery." "The horticultural world," it remarks, "is discussing the wonderful new Orchid which Messrs. Sander, of St. Albans, have discovered after months of patient search. Exhibited on Tuesday at the Royal Horticultural Society's Show, Dendrobium Sanderæ easily gained the Society's First-class Certificate. In size it is not large. Its prevailing colour is white, with a purple lip and a throat of greenish colour.

"At Messrs. Sander's farm at St. Albans a . . . representative was told some incidents of an exciting search. For many years Messrs. Sander's

traveller has known of the species, but the real difficulty lay in obtaining the services of escorts of reliable natives.

"From time to time parcels of glass beads and watches, linen and bright handkerchiefs were sent from England to propitiate the natives. But they were suspicious and hard to pacify.

"The Orchid hunter bided his time, and with an escort of friendly natives seized an opportunity to secure a collection of the plants, and had them rapidly conveyed to the coast.

"The comforts of civilisation were not for the intrepid hunter, whose bed was in the primeval forests, and whose breakfast—and whose life—depended on his gun. Fever lurked in the swamp and mountain and morass, and there were a hundred natural obstacles to be overcome.

"Messrs. Sander prefer not to state the place of origin of the new Orchid, of which they possess at present fifty plants.

"The agent who secured the new Orchid has now gone to New Guinea in quest of an Orchid that only grows among the bones of dead men."

Another cutting, and this from a horticultural paper, states that the plant is from the Philippines. My correspondent wants to know—but never mind what, the original description is silent, and the figure and history at pp. 209, 210, take us no further. It is a fine thing—that the figure shows—but there is a significance in that last paragraph.

Speaking of geography, reminds me that the other day I came across a paragraph in the *Irish Naturalist* entitled "Spiranthes Romanzoffiana not in Devonshire." But why announce the fact? It seems that in the *Country-Side* for August 22nd, 1908, a notice appeared that the plant had been "found in plenty in a locality (name suppressed) in East Devon," and the Editor added that the plant had been "properly identified." An Irish naturalist, jealous for the fame of his native land as being the only spot outside the United States where this Orchid is indigenous, succeeded in obtaining specimens, and promptly announced, "They belong to Epipactis palustris." I wonder what the plant would have been called if it had been improperly identified.

Another correspondent is sadly troubled about Mendelism, which, he says, seems to mean all manner of things. I am afraid I cannot help him, and if the following only adds to his bewilderment let him not blame me, for he asked for it, and I am no authority on the subject. Moreover, it is not mine at all, and it is only a coincidence that I dropped upon a lecture on the subject just after his question arrived. Whether the interpretation is novel or otherwise he must judge.

The lecturer explained that the earliest idea that two characters were associated in a Mendelian pair, one of which happened to be dominant and the other recessive, had now been modified. The allelomorphic pair, as he put it, was not composed of a pair of homodynamous characters or values, one of which was dominant and the other recessive, but of the presence of a single character and the absence of it. The presence was dominant and the absence recessive. The lecturer continued that this "might and even ought to appear to have far exceeded the limits of legitimate hypothesis spinning but experiment proved its correctness." I was just about to say that it looked as if the pair were only one after all; but I had not got to the experiment. Unfortunately the subject was not an Orchid, so I must summarise the details. It related to characters found in the seed coat of two varieties of pea, maple-spotting in one, purple coat in the other, and these characters are termed M and P, their absence m and p. The two varieties were crossed together, and the hybrids then self-fertilised in the usual way. Most of the self-fertilised seeds showed both characters, but some showed one only, some the other only; the two latter being in fairly equal numbers.

The lecturer remarks: "I well remember the excitement with which I opened the dry pods of the plants of this F2 generation. . . . I had examined many plants before I found one bearing the m p character [*i.e.*, the two absences together], and as I had not a very large number of plants, and this character is only expected to occur once in every sixteen individuals, I became afraid that I might not see one. But I did ultimately obtain two such plants. And well do I remember the interest with which I looked on these peas in which the two units, absence of M and absence of P, were associated in one individual." The lecturer explains that the presence and absence hypothesis may have been put forward to explain one or two outstanding difficulties, but this conception has now supplanted the original form of it.

Perhaps we may be allowed to call it Neo-Mendelism, and it now remains to explain a case of my own where all the absences were dominant together—presence being recessive. This also was unfortunately a pea, not an Orchid. A good many pods had been opened without success, but at length the desired combination was found. The pod was burst open —it was an exciting moment—and there was nothing in it!

But the principle is applicable to Orchids; indeed cases are not uncommon where the capsule opens of itself and is found to contain—NOTHING!

ARGUS.

SOPHRONITIS GRANDIFLORA AS A PARENT.

By J. M. BLACK.

(*Concluded from page* 325.)

THE Sophrocattleyas composed of one-half Sophronitis grandiflora and one half Cattleya number sixteen, and are as follows (the sign ♀ indicates the seed parent, where known) :—

S.-c. Atreus	S. grandiflora	×	C. Lawrenceana.
S.-c. Batemaniana	,, ,,	×	C. intermedia ♀.
S.-c. Blackii	,, ,,	♀ ×	C. × Hardyana.
(See p. 361, fig. 28.)			
S.-c. Calypso	,, ,,	×	C. Loddigesii ♀.
S.-c. Chamberlainii	,, ,,	×	C. Harrisoniana ♀.
S.-c. Cleopatra	,, ,,	×	C. Leopoldi ♀.
S.-c. Doris	,, ,,	♀ ×	C. Dowiana.
(See p. 323, fig. 25.)			
S.-c. eximia	,, ,,	×	C. Bowringiana ♀.
S.-c. Hardyana	,, ,,	×	C. Aclandiæ ♀.
S.-c. Heathii	,, ,,	♀ ×	C. Schrœderæ.
S.-c. Imperatrix	,, ,,	×	C. Mossiæ ♀.
S,-c. Mrs. F. Wellesley	,, ,,	♀ ×	C. labiata.
S.-c. Nydia	,, ,,	×	C. × calummata ♀.
S--c. Saxa	,, ,,	♀ ×	C. Trianæ.
S.-c. Thwaitesii	,, ,,	♀ ×	C. Mendelii.
(See p. 322, fig. 24.)			
S.-c. warnhamiensis	,, ,,	×	C. amethystoglossa ♀.

(In Sophrocattleya Blackii and S.-c. Nydia a hybrid Cattleya was employed; all the rest are primary hybrids.)

There are two secondary Sophrocattleyas which are composed of one-quarter Sophronitis grandiflora and three-quarters Cattleya, namely :—

S.-c. Antiochus S.-c. Cleopatra ♀ × C. Warscewiczii.

S.-c. Marcus S.-c. Calypso ♀ × C. × Enid.

(In Sophrocattleya Marcus a hybrid Cattleya was employed, thus both parents are hybrids.

The Sophrolælias composed of one-half Sophronitis grandiflora and one-half Lælia number nine, and are as follows :—

S.-l. grangefieldiensis	S. grandiflora	×	L. Jongheana.
S.-l. Gratrixiæ	,, ,,	♀ ×	L. tenebrosa.
S.-l. heatonensis	,, ,,	♀ ×	L. purpurata.
S.-l. læta	,, ,,	×	L. Dayana ♀.
S.-l. Orpetiana	,, ,,	×	L. pumila ♀.

S.-l. Marriottii	S. grandiflora ♀	× L. flava.
S.-l. Ortoni	,, ,, ♀	× L. × Diana.
S.-l. Psyche	,, ,,	× L. cinnabarina ♀.
S.-l. Valda	,, ,,	× L. harpophylla ♀.

(In Sophrolælia Ortoni a hybrid Lælia was employed; the rest are primary hybrids.)

There are three secondary Sophrolælias which are composed of one quarter Sophronitis grandiflora and three-quarters Lælia, namely:—

S.-l. Felicia	L. Dayana ♀	× S.-l. heatonensis.
S.-l. Leda	L. pumila ♀	× S.-l. Gratrixiæ.
S.-l. Phroso	L. Jongheana ♀	× S.-l. læta.

The Sophrocatlælias having one-half Sophronitis grandiflora in their composition number three, namely:—

S.-c.-l. Eros	S. grandiflora	× L.-c. elegans ♀.
S.-c.-l. Veitchii	,, ,,	× L.-c. Schilleriana ♀.
S.-c.-l. Mary	,, ,,	× L.-c. Helena ♀.

The Sophrocatlælias having but one-fourth Sophronitis grandiflora in their composition, the remaining three-fourths being made up of Lælia and Cattleya in varying proportions, number thirteen, and are as follows:—

S.-c.-l. Danæ	S.-l. Orpetiana	× C. Harrisoniana ♀.
S.-c.-l. De Vere Beauclerc	L.-c. bletchleyensis ♀	× S.-l. heatonensis.
S.-c.-l. Horba	L.-c. Charlesworthii ♀	× S.-c. Nydia.
S.-c.-l. Marathon	S.-l. Psyche ♀	× C. × Frederickiæ.
S.-c.-l. Medeia	S.-l. Orpetiana	× C. bicolor ♀.
S.-c.-l. Nestor	S.-l. Gratrixiæ ♀	× C. Dowiana.
S.-c.-l. Œdipus	L.-c. luminosa ♀	× S.-c. Cleopatra.
S.-c.-l. Olive	S.-l. Psyche ♀	× C. × Enid.
S.-c.-l. Pandora	S.-l. heatonensis ♀	× C. Dowiana Rosita.
S.-c.-l. Penelope	S.-l. Psyche ♀	× L.-c. Hardyana.
S.-c.-l. Phyllis	S.-l. læta	× C. Lawrenceana ♀.
S.-c.-l. pumeximia	L. pumila ♀	× S.-c. eximia.
S.-c.-l. Sibyl	S.-l. heatonensis ♀	× L.-c. Haroldiana.

The Epiphronitis number two, namely:—

E. Orpeti	S. violacea	× E. × O'Brienianum.
E. Veitchii	S. grandiflora	× E. radicans.

CULTURAL NOTE.

There is nothing really difficult in the cultivation of these charming plants when once they have attained a certain size. Warm intermediate temperature, with a crisp, fresh atmosphere might best describe the conditions they enjoy, and a suitable corner can always be found in the

Cattleya house. They are rarely at rest, and should not be subjected to any vigorous drying treatment during the winter. They should be stood well up to the light, and I prefer to elevate them on pots, and have the staging well raised, to suspending them from the rafters, and as they are dwarf growing plants, it will be found a good plan to keep them together in a group, for fear they get neglected or overshadowed among larger growing plants. They require to be carefully—rather closely—shaded during the spring and summer months, otherwise they will lose their naturally healthy green colour and become yellow, lean and starved. Sophronitis grandiflora

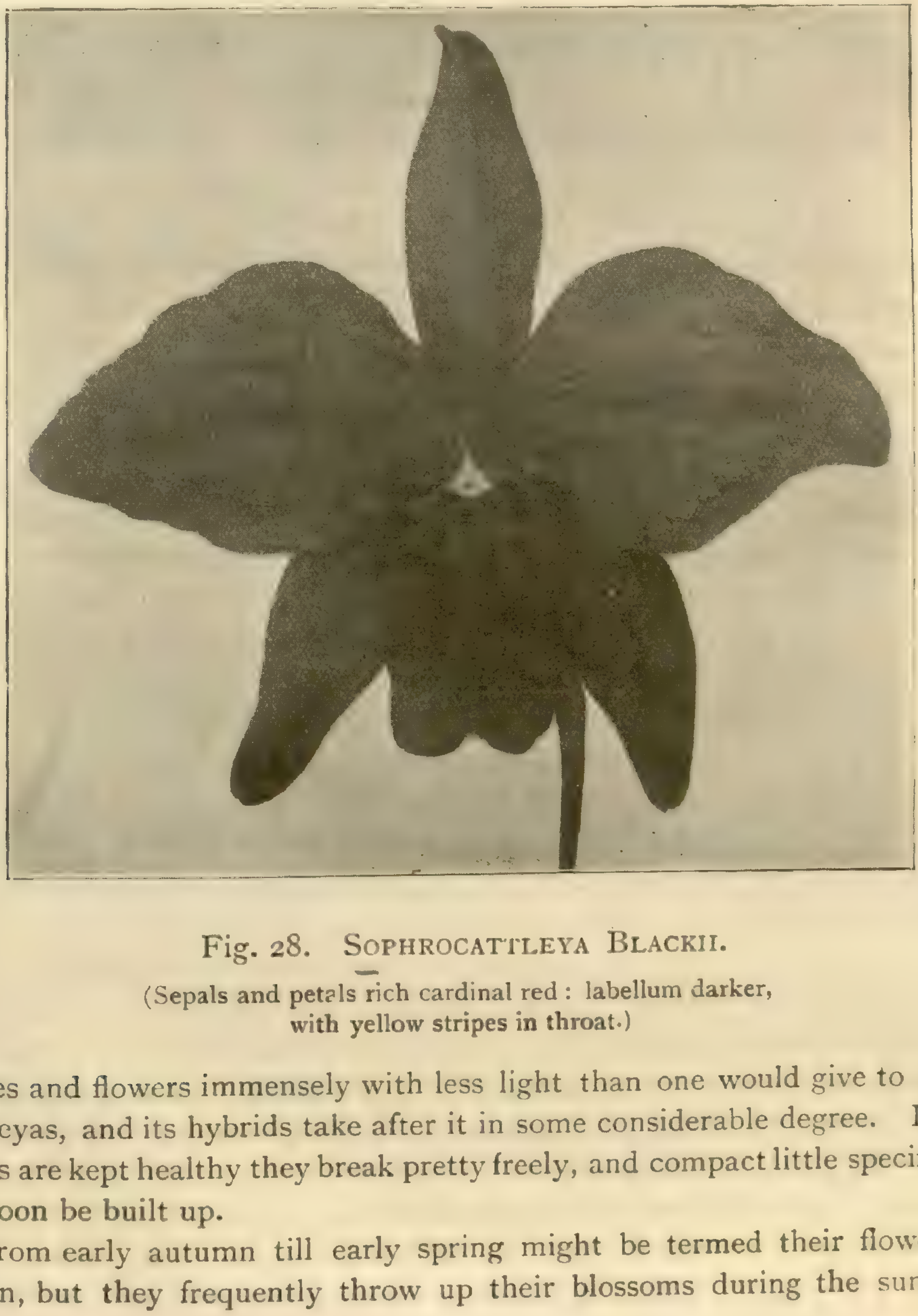

Fig. 28. SOPHROCATTLEYA BLACKII.

(Sepals and petals rich cardinal red: labellum darker, with yellow stripes in throat.)

thrives and flowers immensely with less light than one would give to most Cattleyas, and its hybrids take after it in some considerable degree. If the plants are kept healthy they break pretty freely, and compact little specimens can soon be built up.

From early autumn till early spring might be termed their flowering season, but they frequently throw up their blossoms during the summer

months, and they are always welcomed. I think the best time to pot them is rather late in the spring, but individual plants will of course require particular treatment, and I think there is little doubt but that Osmunda fibre with a little sphagnum moss added is the best potting mixture that can be used for them. I find that they (I am speaking of primary hybrids), grow best towards the end of summer, and then they throw up the buds in the young growths. A mistake which one must avoid is to try and force them into making much growth during the early summer; most of them seem to be then really more or less resting, and again one must look for the reason in Sophronitis. Do not try to force them at all, and be not the slightest bit perturbed to see the summer months running past; they will make up strong and well and flower all in good time.

CALENDAR OF OPERATIONS FOR DECEMBER.

By W. J. MORGAN, Rann Lea Gardens, Rainhill, Lancs.

THIS month, although one of the dullest of the year, is one of the most interesting. Where the plants have been well grown they will give abundance of flowers for winter use, both for cutting and decoration, and just now, when the gardens outside are at rest, the Orchids are very much appreciated. The plants should be staged with a few ferns to hide the pots, which gives a better effect to the flowers.

CALANTHE × VEITCHII.—As these pass out of flower room can be economised by turning them out of the pots, shaking the old material from the roots, and placing them in shallow boxes, with a little sand to keep them in position and save them from getting broken. If any scale be observed on the bulbs it should be carefully sponged off. If it is desired to increase the stock the old back bulbs can be placed in separate boxes or pans, and nearly every bulb will push one or two growths, which soon make vigorous plants when potted up. They should be placed in a light position, not stored away under the stage, and if kept in a temperature of about 60° they will not require any water until they commence to grow. The other deciduous varieties can be given similar treatment as they pass out of flower. Calanthe bulbs are very brittle and must be handled carefully.

COOL HOUSE.—The Odontoglossum crispum which were potted in the autumn should now be making up fine bulbs, and plenty of water will be required until these are made up. A nice growing atmosphere must be kept up in the house by judicious damping. As with the hybrid Odontos that flower at all times of the year, no set rule can be given as to any particular season for potting. The best time to pot is when the young growth is about half made up, and so long as the plant is in the right condition it does not very much matter when it is potted. When only a few plants are potted at a time they should either be staged by themselves or raised on inverted

pots so that no mistakes occur in watering. Any Oncidium macranthum that are making spikes should be kept well supplied with water, and the spikes can be trained along the roof or round stakes. They will make enormous spikes if left to themselves, so should have their points pinched out when they have grown to a reasonable length. Pieces of cotton-wool should be placed round the base of the spike to prevent slugs getting to the tender part. The wool must be renewed whenever it becomes wet or it will not keep the slugs off. Cymbidium Tracyanum and giganteum will be pushing up their spikes, and these must also be carefully watched or slugs will soon do a lot of damage to them. The plants should have an ample supply of water until the flowers are developed, when they can be kept slightly drier, but not allowed to become dust-dry at any time. Liquid manure water will assist plants which are pot-bound. The Lowianum section will be in full growth and should be given liberal treatment. If the syringe is used freely it will keep the leaves free from red spider.

MILTONIAS.—M. vexillaria will now be making strong growths, and any that require repotting should be attended to when the new growth is about half made, just before they commence to push new roots. A mixture of Osmunda fibre and leaves in equal proportions, with plenty of crushed crocks to keep it porous, will suit them as a potting compost. The tops of the pots can be neatly finished off with moss. These Miltonias are very subject to attacks from thrip, and must be very carefully watched while the young growths are pushing, as the thrip will attack the young leaves before they are up far enough to examine them properly, and the damage done will be an eyesore for the whole of the season. A light syringing with insecticide during their growing season will help to keep them clean, but the chief thing is to watch the fires. The atmosphere should not be allowed to become fiery at any time, especially while the plants are growing. Keep the plants well up to the glass, or they will make weak growths. Give them a little air on every favourable occasion, and syringe on bright days. The young leaves will often push up with the edges sticking together, the thumb-nail should be carefully run down the leaf between the edges to release them. If they are left to themselves they will often come deformed and spoil the look of an otherwise healthy plant.

POTTING MATERIALS should be prepared for the busy season. Osmunda fibre can be chopped up and stored away ready for use when the busy season comes round. All dust should be taken out. Crocks can be crushed and stored away, and loam can be picked and have the fine matter taken out. This should be stored away in an open shed where it will not get dust dry, as it is very bad to get into condition if it is allowed to become very dry. It it is turned over occasionally it will keep in good condition. Cow manure for Calanthes, &c., can also be got in to dry gradually for use when wanted.

Leaves collected this autumn should be kept under cover to prevent them rotting too quickly. Those wanted for potting can be rubbed through a sieve and stored away till wanted. Moss, of course, can be added fresh as wanted. Any compost which has been stored away for some time should be sorted over and used up first. In the case of leaves they had better not be used if they are at all inclined to crumble away when squeezed in the hand. All materials should be well damped and left for a night before using, especially fibres which have been stored for some time. All empty pots should be washed and stored away; the cracked ones will come in useful for staging purposes. Where a large quantity of pots are used a pot washing machine will be found very useful, as they are much quicker than hand washing, and when properly used a large number of pots can be washed in a day without making a drudge of the garden boy. It is surprising what a lot of time is saved in the busy season when everything is ready for use.

PAINTING.—The winter months I find to be the best time to get the houses painted inside, as it is very awkward in the growing season to have painters about the houses, and often then a house or division cannot be spared. Just now when most things are resting it does not do any harm to stage them much closer while painting and cleaning is being done. It also gives a chance to get the house floor thoroughly cleaned out. A good sprinkling of newly slaked lime will clear out all the slugs which come in contact with it. The ground can be forked over after the lime has been on a day or so, and this sweetens the whole house. Where rockeries are used to edge the walks, a little care must be taken to keep the lime off the plants. The latter can be trimmed and cleaned over, and the beds pricked over with a hand fork. All the coke or breeze from the lower stage should be taken out and washed, and the stages cleaned down before replacing. This seems a lot of trouble, but it practically clears out slugs for a time and saves the spikes. After a thorough clean down the houses are as good as new, so far as growing is concerned. All plants and pots should, of course, be clean when replaced in a clean house or the labour will be thrown away. In re-staging, keep the plants well up to the glass, but do not let any leaves or spikes touch it. To be safe from a chill the plants should be from nine to twelve inches from the glass, then there is not much fear of the plants getting a chill on a sharp frosty night.

FOG.—Up to the present we have been clear of fogs, which is exceptional. Should they unfortunately occur the temperatures should be kept as advised in last month's calendar.

WATERING must be carefully done, and plants which are resting should be kept on the dry side. Those that are growing should be given sufficient to keep them growing vigorously, and those that are pushing up flower

spikes should not be allowed to become dust dry, or the flowers will be small.

DENDROBES.—Many of these will be showing the buds just bursting from the node, and these will need careful watering, or the buds will fail to develop. They should not be put into stronger heat until the buds are properly formed. Let them come as naturally as possible, and give all the light and air possible on favourable days.

SEEDLINGS are often difficult to manage just now, especially where they have to be grown with the other Warm house plants, and cannot often be given the attention which they require. Any that require larger pots can be shifted on without disturbing the roots, provided that the old material is sweet and sound. Keep a nice genial atmosphere to encourage them to keep growing. Use the sprayer on favourable days, as it assists in keeping them free from thrip, which is the worst enemy seedlings have to contend with.

FUMIGATE the houses occasionally to keep the plants clean, always avoiding an overdose, even of what are termed harmless fumigating preparations.

DAMPING the houses should be closely attended to, but do not get them overcharged with moisture. On the other hand, do not get them too dry. If moisture is hanging about the plants in the morning the night damping should be made lighter. A little observation will soon give the right condition. It is difficult to work to a set rule as houses vary so much, and the outside conditions have so much to do with working the houses.

TEMPERATURES should be kept about as follows :—

Stove	Morning, 65°	...	Midday, 70°
Cattleya house ...	Morning, 60°	...	Midday, 65°
Intermediate house	Morning, 55°	...	Midday, 60°
Cool house ...	Morning, 50°	...	Midday, 55°

A rise of 5° in the day-time is sufficient by artificial heat, but 5° more is permissible by sun heat on bright days, and at such times the fires should be kept well under control.

ONCIDIUM VARICOSUM CONCOLOR.—A plant of this very rare variety has just flowered in the establishment of Messrs. Stuart Low & Co., Bush Hill Park. It appeared in a mass of O. varicosum from the district whence the plant is so often imported, and was in the same mass as an O. varicosum Rogersii. It is a form from which all the brown markings have vanished. It originally appeared in the establishment of M. de Langhe-Vervaene, at St. Gilles, Brussels, in 1898, and was described by Prof. Cogniaux (*Dict. Ic. Orch.*, Oncid., t. 18 ; *Chron. Orch.*, p. 136). The plant was exhibited at the R. H. S. meeting held on November 23rd.—R.A.R.

SOCIETIES.

ROYAL HORTICULTURAL.

A MEETING of the Royal Horticultural Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on October 26th last, when there was a magnificent display of Orchids, and the awards consisted of one Gold and nine other medals, two Awards of Merit, and one Cultural Commendation.

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), staged a magnificent group, which was generally regarded as the best yet staged there, and to which the Society's Gold Medal was awarded. There were about 130 splendidly grown Cattleyas, mostly raised in the collection, bearing 170 spikes, with an aggregate of some 600 flowers. Of C. × Fabia alone (labiata × Dowiana aurea) there were 60 plants, with an aggregate of about 300 flowers, including some very brilliant varieties, and there were several good examples of both parents, fine forms of C. × Mantinii, × fulvescens, × Hardyana, × Iris, the chaste C. × Dusseldorfii Undine, &c. Læliocattleyas and Brassocattleyas were well represented, among the former being the beautiful L.-c. Ortrude (L. anceps × C. Dowiana aurea), L.-c. Priam (C. Harrisoniana × L.-c. callistoglossa), and fine examples of B.-c. Maronæ, Leemanniæ, Hyeæ, and the bright rose-purple B.-c. Siren. Brassocatlælia Rowena (L.-c. Doris × B. Digbyana) was also very effective, and in front were some good plants of the brilliant little Sophrocattleya Saxa, Sophrocatlælia Danæ, Medea and others. Cypripediums were represented by half-a-dozen C. × Rossetti, some good C. Fairrieanum, × Niobe, × Hitchinsiæ, × Richmanii, and many others, in excellent condition. There were also half-a-dozen fine plants of Dendrobium formosum, D. Phalænopsis hololeucum, some good spikes of Phalænopsis amabilis Rimestadiana, &c., the whole forming a remarkable example of cultural skill. An Award of Merit was given to Cypripedium × Beacon magnificum (J. Howes × nitens-Leeanum), a large and handsome greenish-yellow flower, having the lower half of the dorsal sepal emerald green, blotched with purple-brown, and the upper half white.

Ernest R. Ashton, Esq., Broadlands, Camden Park, Tunbridge Wells (gr. Mr. Wright), staged a beautiful group, to which a Silver-gilt Flora Medal was awarded. It contained some good Cattleya Bowringiana, one specimen having seven spikes, C. Dowiana aurea, × Pittiana, × Mastersoniæ, × Fabia, × Mantinii, × Portia, Læliocattleya Truffautiana, and Rothschildiæ, Brassolælia Gratrixiæ, some good Lælia pumila, Vanda cœrulea, Epidendrum vitellinum, examples of Odontoglossum crispum and × Lambeauianum, Dendrobium Phalænopsis and others, with some good Oncidium varicosum behind.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), also received a Silver-gilt Flora Medal for a fine group, including some good C. Bowringiana and its hybrids, C. × Mantinii, C. × Browniæ, the brilliant C. × Aliciæ, C. labiata Amesiana, C. l. cœrulea, C. l. Goodsonæ, Sophrocatlælia Marathon, Odontoglossum × eximium and others, with some good Cypripediums, Lycastes, Oncidiums, &c.

Major G. C. Robertson, Widmerpool, Nottingham (gr. Mr. Wotton), received a Cultural Commendation for a very fine plant of Cymbidium × Gammieanum with five inflorescences.

J. Foster Alcock, Esq., Northchurch, showed a hybrid from Cypripedium × Harrisianum superbum and C. insigne Sanderæ, most resembling the former, but others of the same batch are said to be nearer the second parent.

Sir John Edwards-Moss, Bart., Roby Hall, Torquay, sent a white Cattleya, raised from C. Harrisoniana and C. Schrœderæ.

The Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), sent Cattleya × Fabia and C. × F., Blenheim var., the latter a pretty white form with a richly-coloured lip.

Leopold de Rothschild, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), sent Cattleya × Armstrongiæ superba, a very fine and richly-coloured form.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent four beautiful white forms of Cattleya labiata, called Empress, Her Majesty, Miss Ethel Harting, and Lady Leese, the latter with a large violet blotch, and the others with some pink on the front of the lip.

Messrs. James Veitch & Sons, Chelsea, staged a fine group, which received a Silver Flora Medal. It contained a brilliant lot of Cattleya labiata, Bowringiana, × Fabia, × porphyrophlebia, Brassocattleya Maronæ, Lælia pumila, Oncidium varicosum, Cypripediums, &c. An Award of Merit was given to C. × elatior var. Rex (Leeanum × Baron Schröder), a very handsome hybrid, having the dorsal sepal white, with dotted purple lines, and a green base, and the broad petals and lip yellowish, tinged and spotted with purple.

Messrs. James Cypher & Sons, Cheltenham, received a Silver Flora Medal for an effective group, containing a fine series of Cattleya, Læliocattleya, Brassocattleya, Oncidium varicosum, Dendrobium Phalænopsis, Phaiocymbidium chardwarense, Cypripedium Fairrieanum, × Niobe superbum, × Maudiæ, some fine forms of C. insigne, &c.

Mr. E. V. Low, Vale Bridge Nursery, Haywards Heath, received a Silver Flora Medal for a choice group, consisting chiefly of white forms of Cattleya labiata, and including C. l. The King, Amesiana, R. I. Measures' var., G. G. Whitelegge, Mrs. E. V. Low, Purity, and reedleyensis. It also included the fine Cypripedium × Gaston Bultel and a few others.

Messrs. Sander & Sons, St. Albans, also received a Silver Flora Medal for a nice group, including some brilliant forms of Cattleya labiata, C. × Hardyana, C. × Frederickiæ, a beautiful white form with some rose-pink markings in front of the yellow disc, C. × Klondyke (Harrisoniana × Marriottiana), bearing a spike of cream-yellow flowers, tinged with rose, and a brighter yellow lip, C. maxima, Brassocattleya × Maronæ, Cirrhopetalum refractum, Lycaste macrophylla, Vanda cœrulea, Cypripedium × J. Wilson Potter, &c.

Messrs. Charlesworth & Co., Haywards Heath, received a Silver Banksian Medal for a small but choice group, including a new and interesting Miltonioda, derived from Cochlioda Nœtzliana and Miltonia Schrœderiana, Odontoglossum × armainvillierense xanthotes, a handsomely blotched seedling O. crispum, and other Odontoglossums, a fine Sophrocattleya Doris, Cattleya × Rothschildiana, × Fabia, × Rhoda, Odontioda Bradshawiæ, Cypripedium purpuratum, and others.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Banksian Medal for a good group, including a fine plant of Cirrhopetalum appendiculatum with seven flowers, the racemose C. refractum, Miltonia Clowesii, Cycnoches chlorochilon, Grobya galeata, Bulbophyllum Dayanum, B. Dearei, Cattleya × Maroni, Cypripedium × Rossetti and others.

Messrs. J. & A. A. McBean, Cooksbridge, also received a Silver Banksian Medal for a pretty group, containing several very fine specimens of Cattleya Bowringiana, with very dark rose-purple flowers, C. × Portia Perfection, with a very large rose-purple flower, having a white base to the lip, and other good things.

M. Maurice Mertens, Ghent, sent several hybrid Odontoglossums.

At the meeting held on November 9th there was a very good display of Orchids, and the awards consisted of six medals and two Awards of Merit.

His Grace the Duke of Marlborough, Blenheim Palace, Woodstock (gr. Mr. Hunter), received a Silver Flora Medal for a very fine group of about fifty well-flowered Vanda cœrulea, intermixed with a few plants of Epidendrum vitellinum, Oncidium prætextum, O. Forbesii, and a plant of Cypripedium × Troilus var. Lord Nelson, the whole being tastefully arranged with ferns.

E. Rogerson, Esq., Oakdene, West Didsbury, Manchester (gr. Mr. Price), received a Silver Banksian Medal for a fine group of Cypripediums, including a few good C. insigne, C. × Gaston Bultel, C. × Niobe, C. × Thalia magnificum, C. × Arthurianum pulchellum, C. × Hitchinsiæ, C. × triumphans and others..

Lt.-Col. G. L. Holford, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. Alexander), received an Award of Merit for Læliocattleya Corunna, Westonbirt

var., raised from L.-c. Ingramii crossed, it is believed, with C. labiata, but the record has been lost. It is of dwarf robust habit, and the flower is large and of excellent shape and substance, the sepals and petals well expanded, bright magenta-rose in colour, and the lip rich ruby-purple with a trace of yellow veining in the throat. He also sent Cypripedium × Rossetti magnificum, C. × Darius (Charlesworthii × Mrs. Wm. Mostyn), showing much of the character of the former, with some lines on the dorsal sepal, the handsome C. × Niobe-Leeanum, and C. × Dante magnificum (Euryades × Charlesworthii).

M. le Comte Joseph de Hemptinne, St. Denis, Westrem, Ghent, received an Award of Merit for Læliocattleya Baroness Schröder var. Madame de Hemptinne (L. Jongheana × C. Trianæ), a handsome bright rose-coloured flower, with a purple feather on the middle of the petals, and the throat of the lip orange-yellow, with a rich purple blotch in front.

R. Brooman White, Esq., Arddarroch, Garelochead, N.B., sent several beautiful spikes of Odontoglossum crispum, including white, rose, and spotted forms.

Sir Jeremiah Colman, Bart., Gatton Park, Reigate (gr. Mr. Collier), sent a very fine specimen of the handsomely spotted Brassocattleya Mary, Cirrhopetalum cornutum, Dendrobium eriæflorum, and several plants of Cattleya × Portia cœrulea (Bowringiana lilacina × labiata cœrulea), having delicate lavender-blue flowers with a slaty-blue lip—a really striking variety.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. Davis), sent a fine plant of Cypripedium × Troilus (insigne Sanderæ × nitens Hyeanum) with three flowers.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. Day), sent the pretty Sophrocattleya Doris and Brassocatlælia Tring Park Hybrid.

G. P. Walker, Esq., Heatherfield, Putney, sent Odontoglossum Jasper (amabile × crispum roseum), a pretty rose-coloured, well-spotted flower.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Cypripedium × fulshawense giganteum, C. × elatior pulchellum, and C. × Emperor (Beeckmanii × Sallieri), a large yellow flower, with some small brown spots on the dorsal sepal.

Messrs. Charlesworth & Co., Haywards Heath, staged a fine group, which gained a Silver Flora Medal. It included á number of good Læliocattleya luminosa and others, Epidendrum vitellinum, Odontoglossum × armainvillierense xanthotes, some blotched O. crispum, raised from seed, a good O. apterum, and others, Cattleya × Phrygia (Enid × Portia), Sophrocattleya Eros, Sophrocatlælia Marathon, the graceful Cœlogyne Veitchii, Brassia longissima, Stenoglottis longifolia, Houlletia Brocklehurstiana, Cirrhopetalum Mastersianum, Trichopilia suavis, Bulbophyllums and a good series of Cypripediums.

Messrs, James Cypher & Sons, Cheltenham, received a Silver Banksian Medal for a good group of Cypripediums, including yellow and spotted forms of C. insigne, C. × aureum giganteum, C. × triumphans, C. × Tityus superbum, C. × Minos Youngii, a series of C. Fairrieanum, including a fine dark variety, C. × Maudiæ, and other fine forms.

Mr. E. V. Low, Orchid Nursery, Vale Bridge, Haywards Heath, received a Silver Banksian Medal for a choice group, including Cattleya labiata Amesiana, reedleyensis, Laura, a good white variety with a little sulphur yellow in the tube of the lip, and others, Oncidium incurvum album, Odontoglossum Uroskinneri album, Dendrobium Phalænopsis album, Cypripedium × Olivia, C. × Niobe, &c.

Messrs. Stuart Low & Co., Bush Hill Park, received a Silver Banksian Medal for a showy group, containing some good Cattleya labiata, white and coloured, C. × Hardyana, C. Bowringiana, C. Dowiana aurea, the rare Ionopsis paniculata, Pleurothallis obovata, Physosiphon Loddigesii, Lanium Berkeleyi, Masdevallia tovarensis, Dendrobiums, Cypripediums, &c.

M. Maurice Mertens, Mont-St.-Amand, Ghent, sent a few hybrid Odontoglossums.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THE number of plants staged, and the high quality of the exhibits were again fully maintained at the meeting held in the Coal Exchange, on November 4th. The Committee sat as follows:—Messrs. E. Ashworth (Chairman), R. Ashworth, Sander, Thorp, Holmes, Shill, Ashton, Parker, Keeling, Warburton, Ward, Cowan, Leemann, Weathers (Hon. Sec.), and by invitation, Messrs. Chapman and Morris.

A. Warburton, Esq., Vine House, Haslingden (gr. Mr. Dalgleish), staged a magnificent group of plants, occupying nearly one side of the central stage, which consisted of very choice varieties of Cattleyas, Lælias, Odontoglossums, &c., and gained the Society's Gold Medal. I noted the fine Odontoglossum × Lambeauianum var. Franz Masereel, O. crispum Eclipse, Cattleya labiata vars. King of Greece, alba, and Mrs. A. Warburton, C. Dowiana aurea, Miltonia × Bleuana grandiflora, Cypripedium × Baron Schröder, C. × Rossetti, C. × Golden Glow, C. insigne rotundiflorum, &c. Cattleya × Fabia alba gained an Award of Merit.

J. T. Clifton, Esq., Lytham Hall (gr. Mr. Float), again staged a very fine group, a prominent feature being the many rare botanical species, and the fine varieties of Cattleyas and Lælias. Cattleya labiata var. Mrs. Saunderson and Oncidium × hæmatochilum received Awards of Merit. Trichosma suavis gained a First-class Botanical Certificate, Second-class ditto going to Liparis Grossii, Dendrobium eriæflorum, D. bicaudatum, D. bellatulum, and Cirrhopetalum appendiculatum (Silver and Silver-gilt Medals).

Mrs. Wood, Moorfield, Glossop (gr. Mr. Gould), gained a Silver-gilt Medal for a nice miscellaneous group of well-grown plants. The large and richly-coloured Læliocattleya luminosa Moorfield var. received a First-class Certificate, Awards of Merit going to Cattleya × Aliciæ (labiata × Iris), C. × Col. Sidebotham (Hardyana × Gaskelliana), and C. × Annie Kershaw Wood (Adula × Dowiana aurea). The group included C. × J. Baguley, Læliocattleya Lucy, and many Oncidium, Vandas, Cypripediums, &c.

Clive Cookson, Esq., Wylam-on-Tyne (gr. Mr. Chapman), sent a small but very choice group. The fine hybrid Cypripedium × Faire-Maud (Fairrieanum × Maudiæ), C. × San-ac-deræ var. Cooksoni, Odontioda Bradshawiæ var. Cooksoni, and Calanthe × Angela all gained First-class Certificates, Awards of Merit going to Calanthe × Bryan giganteum, Cattleya × amabilis Oakwood var., C. × Fabia Cooksonæ and Cypripedium × San-ac-deræ (Vote of Thanks).

Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), sent a nicely-arranged group of Cypripediums, backed with well-grown Odontoglossums (Silver Medal). I noted many plants of Cypripedium insigne Sanderæ, C. i. Chantini Lindeni, C. × Nogi, Odontoglossum × Vuylstekei, and other blotched forms and hybrids.

N. Galloway, Esq., Great Horton, Bradford, staged a nice group, which included Cypripedium × Rossetti, C. × beechense, a fine C. Charlesworthii, C. × Minos Youngii, C. × Kitty, &c. (Silver Medal).

Chas. Parker, Esq., Ashton-le-Ribble. Preston, sent a group of Cypripediums which gained a Silver Medal. I noted C. × Sir Redvers Buller, C. × Baron Schröder, C. × gigas, Corndean Hall var., C. × Maudiæ, C. × triumphans, &c.

R. le Doux, Esq., West Derby (gr. Mr. Fletcher), gained a First-class Certificate for the fine Cypripedium Mrs. J. C. Taite (Sanderianum × aureum virginale), with the dorsal sepal almost wholly pure white, and Awards of Merit for C. × Mrs. Sam Hignett and Odontoglossum × amabile Marlfield var. I noted also O. × Vuylstekei and Cypripedium × bingleyense. We are pleased to sec this exhibitor coming to the fore again.

H. J. Craven, Esq., J.P., The Beeches, Keighley (gr. Mr. Corney), sent the beautiful Cattleya labiata Harefield Hall var., which gained a First-class Certificate.

J. McCartney, Esq., Hey House, Bolton (gr. Mr. Holmes), gained Awards of Merit for Cattleya × Armstrongiæ var. J. McCartney, C. × Alice (Gaskelliana × Parthenia), C. labiata var. Mrs. J. McCartney, and Læliocattleya × Rubens.

S. Gratrix, Esq., Whalley Range (gr. Mr. Shill), sent Cypripedium × Chorltoni Warburton's var. and C. × Mrs. J. E. Shill, the latter a very beautiful and refined hybrid.

R. Ashworth, Esq., Ashlands, Newchurch (gr. Mr. Gilden), sent Cattleya labiata La Vierge, and Cypripedium Amesii var. Black Watch, both gaining Awards of Merit.

W. R. Lee, Esq., Plumpton Hall, Heywood, sent Cypripedium × nitens, Ball's var., C. × Actæus langleyense, and C. × Aurora, the latter gaining an Award of Merit.

E. Rogerson, Esq., Oakdene, Didsbury (gr. Mr. Price), sent Cypripedium × Chestersianum (Thalia × insigne Sanderæ).

Mr. J. Robson, Altrincham, gained a First-class Certificate for Cattleya labiata var. Daphne and C. l. var. Schofieldiana. He also sent C. l. Petersii, C. l, glauca, and C. l. R. I. Measures var., all of good quality.

Messrs. Keeling & Sons, Westgate Hill, Bradford, staged a nice miscellaneous group, in which I noted some good Cattleya × Iris, a very large, dark Cypripedium Charlesworthii, and some good C. Fairrieanum.

Mr. J. Birchenall, Alderley Edge, sent Lycaste costata, L. xytriophora, and Miltonia × Lamarcheana.

CYPRIPEDIUM FAIRRIEANUM.

FOR some years I have cultivated at Nice Cypripedium insigne, and some of its best varieties in pots, to adorn the porch of my villa during the winter. Save that there is overhead protection from rain there is no special protection of any kind given them in winter, though there are several degrees of frost registered at intervals during that season in severe winters.

Remembering how entirely the dainty little C. Fairrieanum had died out when grown under glass in England and elsewhere, I obtained some nice bits a year ago, that had been recently imported, and I planted them in pots under the shelter and shade of a fine olive tree where the C. insignes pass the summer, with the aid of a little additional shading, but in the full draught of the summer sea breezes. Under these conditions C. Fairrieanum has become thoroughly established, and its vigour and growth exceeds anything I have seen elsewhere. The new leaves of this summer are more than double the size of the previous year's growth, the number of crowns has increased threefold, and the strength of the flower stems is quite a surprise to me. It is evident that a full exposure to air, not to say wind, and a dry and rather warm atmosphere in summer, suits this plant much better than the closer and damp air of a cool Orchid house. Indeed, I should say that an airy plant house in England or a porch-conservatory will suit this dainty flower far better than any Orchid house with its moist atmosphere. I had heard in several places last summer at home that there were signs of this pretty little plant failing already in some places, and I must certainly say I have not seen any plants so vigorous as these here, so I write at once to let gardeners know how much air and dryness this plant enjoys.

C. insigne, on the contrary, at first was checked by the heat and drought during the summer here, but after some years the plants have got acclimatized, and I notice especially this year how strong and tall the flowering stems are of C. insigne Sanderæ, which at first resented the change from an English Orchid house, and for the first year seemed at a standstill.

The point to which I wish to draw attention is this. C. Fairrieanum has for a year been grown in the open air here, where the thermometer falls below freezing point not unfrequently during such a winter as the last, though the temperature is rarely as low as 50° during the day-time. During the summer it is exposed to strong winds and high temperatures, with a dry atmosphere on many occasions, and under these conditions it has thriven to an unusual degree. Cymbidium Lowianum is the only other Orchid I know that stands the same extremes, but its constitution is so robust that it enjoys equally the damp atmosphere of an English Orchid house. The same conditions suit Clivia miniata, but that plant is much less hardy where any frost is concerned, and is soon disfigured by a severe winter storm here. Hence I would say grow your C. Fairrieanum as you grow your Clivias.

E. H. WOODALL.

HABITAT OF C. FAIRRIEANUM.—The following note is taken from a work by John Claude White, C.I.E., entitled *Sikkim and Bhutan* (p. 185), recently published by Edward Arnold: "On that occasion I entered the hills a little further to the west, at Subankhata, and accompanied Sir Ugyen for a few marches till we came to the Kuru-chhu, on the direct road to Tongsa. On this journey I came across quantities of Cypripedium Fairrieanum growing in masses on the magnesium limestone hills. This is the Orchid of which one specimen reached England about 1860 in a consignment sent from Sikkim by Sir Joseph Hooker, but had since become extinct, and for which £1,000 was offered by Orchid growers. I had been on the look-out for it for several years, and now when I did find it I was just too late, as it had been discovered during the survey of the Am-mo-chhu Valley a few months before." The localities are both in Bhootan, but we have not yet been able to ascertain the altitude.—ED.

CIRRHOPETALUM LONGISSIMUM.—A plant of this remarkable species was exhibited at the R.H.S. meeting held on November 23rd by Sir Trevor Lawrence, Bart., and received a First-class Certificate. The species is a native of Siam, and was discovered at Pungah by Mr. C. Curtis. It flowered at the Botanic Garden, Penang, in October, 1893, and was described three years later by Ridley (*Journ. Linn. Soc.*, xxxii. p. 280), the author remarking: "This species is remarkable for the immense length of the lateral sepals, which are upwards of a foot long." The species flowered

in the Royal Botanic Garden, Glasnevin, in July, 1905, producing a four-flowered inflorescence, which Mr. F. W. Moore forwarded to Kew. Sir Trevor's plant produced a seven-flowered inflorescence, which is also preserved at Kew. The lateral sepals were about 11 inches long, so that the plant has probably not reached its maximum development. Their colour is cream-white, with five lilac-pink stripes, while the short dorsal sepal has a rose-purple apex and similar lines below. The dorsal sepal and petals are slightly ciliate, the latter being spotted with red purple.—R. A. R.

ORCHIDS IN SEASON.

A BEAUTIFUL albino of Cattleya × Williamsiæ is sent from the collection of Lieut.-Col. Sheppee, Holly Spring, Bracknell, by Mr. W. Swanborough, who remarks that it was bought as a tiny seedling from Messrs. Sander about three years ago, and is now flowering for the first time. The parentage is given as C. Gaskelliana × Harrisoniana. The flower is white, with the disc of the lip deep yellow, and showing some of the corrugations of the C. Harrisoniana parent. The lip, however, is nearly entire, with the margin strongly crisped, while the petals are very broad. It is a chaste and beautiful variety, and may be called C. × Williamsiæ alba.

A form of Paphiopedilum Actæus (P. insigne × Leeanum) is sent from the collection of Richard Gallsworthy, Esq., of Harrogate. It has light yellowish-green flowers, with a distinct purple stripe down the petals, and many small brown dots on the dorsal sepal, the upper third of which is white. It is a form of P. × Simonii.

A flower of a pretty little Læliocattleya is sent from the collection of W. H. St. Quintin, Esq., Scampston Hall, Rillington, by Mr. F. C. Puddle. It is said to have been raised from Cattleya Bowringiana crossed with the pollen of L.-c. La France, the seed being sown in February, 1906. The flower is bright rose-purple, with a pale throat to the entire, tubular lip, and thus most resembles the seed parent. Other seedlings may behave differently, but in this case neither the inflorescence of C. bicolor nor of Lælia tenebrosa can be clearly traced in the flower.

A flower of Læliocattleya wintonensis is sent from the collection of John S. Moss, Esq., Wintershill, Bishops Waltham, by Mr. C. Kench, who remarks that it was raised in the collection from Cattleya Harrisoniana, crossed with the pollen of L.-c. Mylamiana, and flowered for the first time in October, 1908. He further remarks that the bulbs are two-leaved, like both the parents, while some of the plants show spotting on the leaves as in the pollen parent. Winton is the old Roman name for Winchester. The flower shows clearly the influence of C. Harrisoniana and Lælia crispa, one of the parents of L.-c. Mylamiana, but that of C. granulosa, the other parent, is not so easily traced. In shape the flower is most like the former,

and the sepals and petals are light purple, while the lip is three-lobed, the front lobe and apex of the side lobes very deep purple, and the basal part white, with some dark lines in the yellow throat.

LÆLIA ANCEPS SANDERIANA.

(See *Frontispiece*.)

THE Frontispiece to the present volume represents a magnificent plant of Lælia anceps Sanderiana, from the collection of Lt.-Col. G. L. Holford, Westonbirt, Tetbury, kindly sent by Mr. Alexander, who remarks that it has been grown from a single lead. As will be seen, the plant bears seven racemes, with an aggregate of thirty-two flowers. This variety is highly valued at Westonbirt, and is very floriferous if kept in vigorous health. The plants are grown in teak baskets and suspended well up to the light. The rhizomes are severed behind the two or three leading bulbs, which causes them to produce double or treble breaks and thus increase their flowering capabilities. The plant shown is a picture of grace and beauty and an excellent example of good culture.

NOTES.

THE Royal Horticultural Society will hold its last meeting for the year at the Royal Horticultural Hall, Vincent Square, Westminster, on December 7th, when the Orchid Committee will meet at the usual hour, 12 o'clock noon. The Secretary announces that there will be no show on December 21st, and its inclusion in the Fellows' ticket was an error. The Committee will sit upstairs, and plants, &c., for Certificates received, but nothing else. The first meeting in the New Year will be held on January 11th.

Two meetings of the Manchester and North of England Orchid Society will be held at the Coal Exchange, Manchester, during December, on the 2nd and 16th. The Committee meets at noon and the exhibits are open to inspection from 1 to 4 p.m. The first meeting in the New Year is fixed for January 6th.

A correspondent writes to express his appreciation of the fine illustration of Odontoglossum × percultum seedlings given at page 337, and thinks it would be interesting to have more of them. We agree that it would be an excellent idea in photographing fine varieties to include other forms from the same batch, so as to show the range of variation and afford a better standard for comparison. We hope that our correspondents will bear it in mind. He also remarks: "I am quite delighted with the *Orchid Stud-Book*. I had no idea it was such a fine volume, with so many illustrations."

INTERNATIONAL EXHIBITION AT BRUSSELS.—We have received the Schedule of the Horticultural Show to be held at Brussels from April 30th

to May 3rd in connection with the above. The second section is devoted to Orchids, and contains 78 classes, for which Gold, Silver and other Medals are offered. There are classes for the best collections, for collections of 100, 50, and 25, for the greatest number of distinct species, for new or recently introduced Orchids, species and hybrids, for collections and specimens of all the leading genera, and for culture. Another Show will be held from October 29th to November 2nd, in which 38 classes are set apart for Orchids, with prizes as before. Schedules and particulars may be obtained of the Secretary of the Horticultural Committee, 8, Whitehall Place, London, S.W.

ORCHID PORTRAITS.

CALANTHE × DOMINYI.—*Gard. Chron.*, 1909, ii. p. 328, with suppl. tab.

CATTLEYA × HARDYANA, THE BARON.—*Journ. Hort.*, 1909, ii. p. 481, with fig.

CYPRIPEDIUM × FAIRE-MAUDE.—*Journ. Hort.*, 1909, ii. p. 505, with fig.

LÆLIOCATTLEYA CANHAMIANA ALBA.—*Gard. Mag.*, 1909, pp. 866, 867, with fig.

LÆLIOCATTLEYA KING MANOEL.—*Gard. Mag.*, 1909, p. 939, with fig.

LÆLIOCATTLEYA LUMINOSA.—*Journ. Hort.*, 1909, ii. p. 457, with fig.

LÆLIOCATTLEYA PIZARRO, WESTONBIRT VAR.—*Garden*, 1909, ii. p. 563, with fig.

ONCIDIUM ABORTIVUM.—*Gard. Chron.*, 1909, ii. p. 322, fig. 141.

ANSWERS TO CORRESPONDENTS.

[*Orchids are named and questions answered here as far as possible. Correspondents are requested to give the native country or parentage of plants sent. An* ADDRESSED *postcard must be sent if a reply by post is desired (abroad, reply postcards should be used). Subjects of special interest will be dealt with in the body of the work*].

H. G. A.—1, Oncidium prætextum. 2, Paphiopedilum, a secondary hybrid showing characters of P. villosum and P. Spicerianum, possibly a form of P. × Hera. 3, Sigmatostalix radicans. 4, Epidendrum raniferum. 5, Cymbidium giganteum. 6, Epidendrum fragrans.

F. S. L.—The dried flowers are Oncidium cornigerum, Lindl., and Cattleya × Krameriana, Rchb f., the latter a natural hybrid with the parentage you suggest. The drawing is Catasetum Trulla, Lindl., and is specially interesting as showing both sexes and fruit. The flowers coated with napthaline are not yet determined. Please dry them in future.

J. J. K.—Promenæa stapelioides and P. xanthina. It is interesting to have another record of their growing intermixed. You may find the natural hybrid another season.

Photographs received with thanks.—J. W. F., H. G. A.

D. L.—The article you suggest shall appear in a very early issue. We agree as to its importance.

Several articles and notes are unavoidably held over owing to curtailment of space by the Annual Index.

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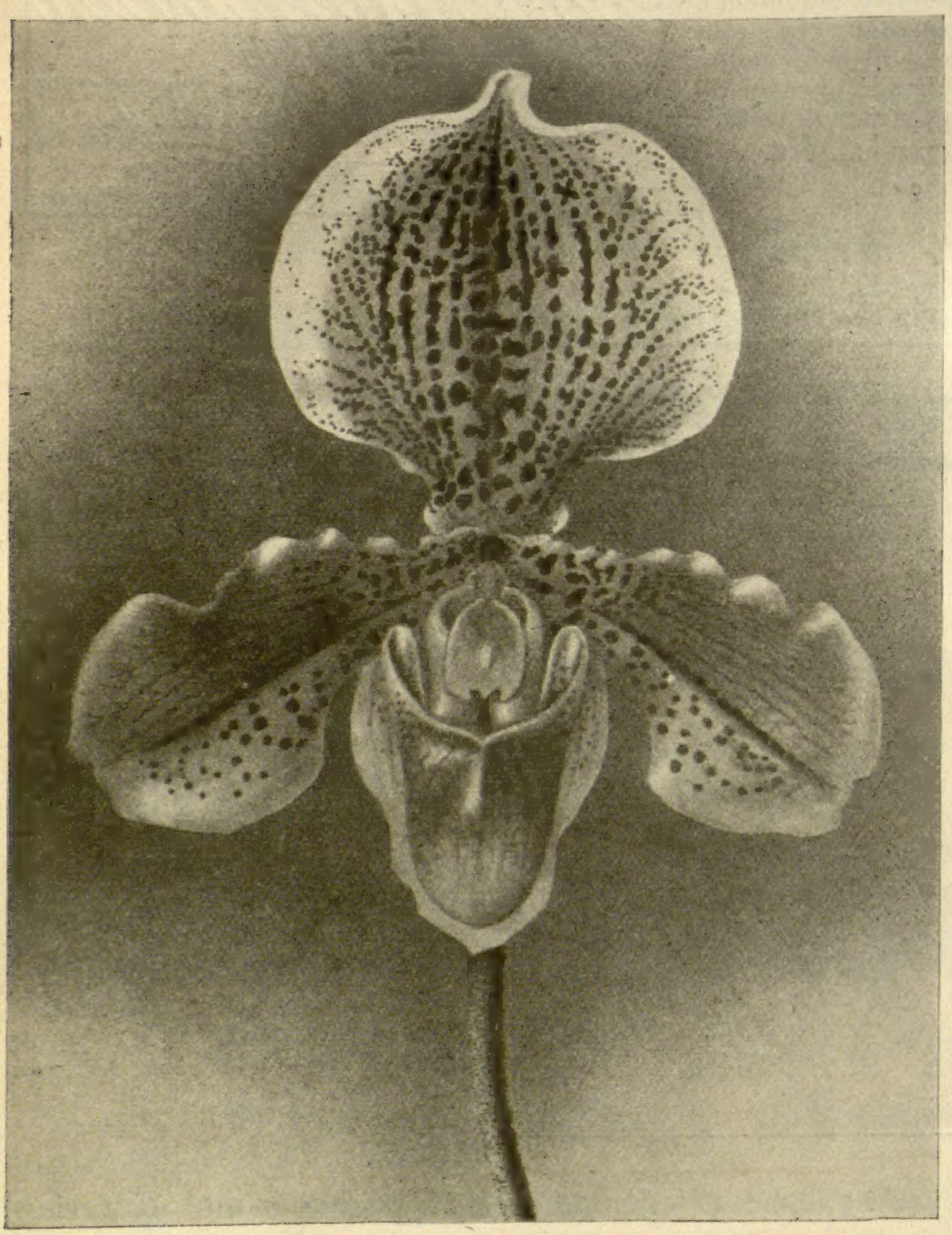

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